GENERAL INDEX

OF

VOLS. I—X, SECOND SERIES.

A.

Abbadie, A. d', comparison of Centigrade and Fahrenheit thermometers, x, 281.
Abert, J. W., journal from Bent's Fort to St. Louis, noticed, iii, 301.
Report on New Mexico, vi, 376.
Abich, excursion to Mt. Ararat, ii, 291.
volcanic plateaux of the lower Caucasus, v, 423.
Academy, American, see *American*.
of Natural Sciences, of Philadelphia, Proceedings of, i, 311, ii, 156, 303, iii, 151, 455, iv, 149, 303, 455, v, 152, 305, 460, vi, 156, 304, vii, 458, ix, 152, 458, x, 149.
ib., Journal of, (in quarto,) v, 303, ix, 310.
state of Cabinet of, v, 294.
F. B. Wilson's donations to, ii, 296. v, 294.
of Sciences, at Paris, members elected, ii, 291, iii, 451.
Acalephæ of North America, *Agassiz*, x, 272.
Acetate of iron, remedy for arsenic, i, 108.
of lime, in coal pits, iv, 275.
Acetic acid, preparation of, *W. B.* and *R. E. Rogers*, ii, 20.
Achilleine in the Achillea millefolium, iii, 426.
Acid, new, in human urine, i, 104.
acetic, separation of, ix, 419.
allophanic, v, 409.
arseniferous sulphuric, how purified, i, 111.
aspartic, vi, 420, x, 262.
benzoic from hippuric, iii, 257.
benzoardic, i, 119.
boracic, in Tuscany, ix, 431.
influence in vitrification, ix, 305.
ether compounds of, ii, 412.
bromo-boracic, ii, 113.
butyric, of soaptree, ix, 116.
separation of, ix, 419.
butyro-acetic, v. 258.
carbonic, absorption of, *Rogers*, vi, 96.
action of solid with bases, v, 184.
carminic, v, 414.
of castor oil, viii, 106.
chloric, preparation of, v, 262.
chloroniceic, viii, 412.
chromic, preparation of, ii, 261.
chrysolepic, viii, 108.
cyanic, action on alcohol, v, 409.
Acid, *formic, in stinging nettles*, x, 108.
gallic, tannic transformed into, v, 121.
hippuric affording benzoic, iii, 257.
hydro-bromic and hydriodic, preparation of, ix, 421.
hydrofluoric, v, 408.
hypochlorous, ii, 261.
iodic, preparation of, i, 259.
lactic, from cane sugar, i, 107.
action of chlorine on, x, 258.
margaritinic, viii, 263.
margaric, viii, 270.
metacetonic, v, 258, x, 256.
metallic, researches on, i, 104.
nitric, test for, i, 108.
action of sulphuretted hydrogen on, v, 261.
anhydrous, viii, 270.
some combinations of, v, 117.
some hydrates of, v, 263.
action on woody fibre, ix, 20.
nitrous, estimation of, ix, 114.
nitro-coccusic, v, 414.
nitro-phenisic, viii, 108.
perchromic, v, 123.
phosphoric, preparation of pure, i, 109.
separation of, *H. Rose*, viii, 181, ix, 283.
anhydrous, action on the amids, v, 263.
picric, viii, 108.
Porter's new, resembling pectic, ix, 20.
prussic, i, 105.
new test for, *Liebig*, iv, 101.
salicylic, ii, 409.
sebasic, action of nitric acid on, *A. Schlieper*, vii, 420.
stearic and margaric, *Laurent* and *Gerhardt*, viii, 270.
succinic, preparation of, from malate of lime, ix, 117.
sulphuric, manufacture of, vi, 113, 262.
dehydration of, v, 124.
of tobacco, ii, 112, iii, 423.
tartaric, fermentation of, iv, 271.
valerianic, i, 262, ii, 112, ix, 419.
of the bark of Viburnum opulus, ii, 411.
Acids, common origin of certain, *Redtenbacher*, iii, 254.
fat, of the oil of Ben, *P. Walter*, iv, 271.
sulphur, analyses of some, viii, 109, 110.
Acid rain, i, 112.

Acid springs, *T. S. Hunt*, vii, [illegible] viii, 364. *W. B. Rogers*, ix, 123.
waters of New York, *Craw* and *Erni*, ix, 449.
[illegible] of the gastric juice, iv, 102.
Acti[illegible] notice of, i, 254.
Adams, C. B., Geology of Vermont, i,
on a small ornithichnite, ii, 215.
furrows on rocks dependent on structure, iii, 433.
geological distribution of mollusca, v, 108.
on the taconic rocks, v, 108.
on a polished rock, v, 110.
on claystones, v, 110.
on a fractured and repaired Argonauta, vi, 137.
new species of Haliotis, vi, 138.
Report on Vermont by, noticed, iii, 144.
Contributions to Conchology by, noticed, ix, 133.
Adams, T. B., experiments with gun cotton in blasting, iv, 139.
Adulteration of olive oil, detection of, iv, 272.
Adulterations in medicines, v, 139.
Aerolites, see *Meteorites*.
Affinity affected by cold, i, 256.
Africa, wild animals of, x, 134.
on the negro races of oriental, x, 276.
African bat, a new species, *E. Hallowell*, ii, 273.
Agassiz, L., geological development of animal life, i, 280.
on nomenclature, iii, 302.
Moose and Carabou, and American Raven distinct from European species, iii, 436.
analogy between the fossil flora of Europe and recent of America, iv, 424.
water tubes of fishes, vi, 431.
structure of the foot in embryo-birds, and bearing of the facts on the classification of birds, vi, 432.
on the erratic phenomena about Lake Superior, x, 83.
on the circulation and digestion in the lower animals, x, 123.
new zoological species from Lake Superior, described by, x, 125.
contributions to the Natural History of the Acalephæ of N. America, x, 272.
the classification of insects from embryological data, x, 304.
relations of animals and the elements in which they live, ix, 369.
works by, noticed, ii, 300.
Principles of Zoology by, noticed, vi, 151.
Bibliographia of, noticed, vii, 454.
Lectures on Embryology by, noticed, viii, 156.
work on Lake Superior, by, noticed, ix, 309, 455.
arrival in the United States, ii, 440.
accepts a professorship in Harvard, iv, 449.
editor of the Zoological Journal, x, 287.
Agriculture, notice of *E. N. Horsford's* chemical essays relating to, iii, 144.
J. P. Norton's memoir on the oat, iii, 145, 222, 318.
Elements of Scientific, or the connection between science and the art of Practical Farming, by *J. P. Norton*, x, 146.
A[illegible]tural Botany, notice of Darlington's, iv, 451.
Society of New York, transactions of, viii, 307.
Air, atmospheric, on the quantity of heat [illegible]d from by compression, *J. Gorrie*, x, 39, 214.
vitiated, of apartments, how distributed, ii, 412.
Air-pump, improvements in, x, 284.
Alabama, coal of, i, 371.
fossils of, i, 395.
zeuglodon of, ii, 125.
coal plants of, ii, 228.
geology of, ii, 419, vi, 354.
coal fields of, *C. Lyell*, iii, 37.
nummulite limestone, age of, *C. Lyell*, iv, 186, vii, 114.
beaver in, iv, 285.
geology of, *C. S. Hale*, vi, 354.
first biennial geological report of, x, 299.
Albite of Upper California, vii, 253.
of a corundum locality, analysis of, *B. Silliman, Jr.*, viii, 389.
Albumen, products from the decomposition of, vii, 107.
analysis of, vii, 110.
Albuminous substances, changes of, in the stomach during digestion, *Mulder*, iv, 402.
Alcargene, relations of glycocoll with, *T. S. Hunt*, iv, 108, 266.
Alcohol, incandescence of iron, copper, &c., in the vapor of, ii, 260.
and aldehyde acted on by cyanic acid, v, 409.
detection of traces, iv, 102.
Aldehyde, preparation of, *W. B.* and *R. E. Rogers*, ii, 20.
alkaloids of, v, 122.
action of alkalies and acids on, *H. Weidenbusch*, viii, 268.
Ale, inorganic constituents of, vii, 102.
Aleuxodes, species of, ix, 108.
Alexander, J. H., a crystallographic memorandum, v, 136.
tension of vapor of water, vi, 210, 317.
new formula for interpolations, vii, 14.
new protractor for trisecting angles, vii, 243.
new tables of the pressure of steam at various temperatures, vii, 361.
Alexander, S., physical phenomena dependent on the progressive motion of light, vi, 397.
fundamental principles of mathematics, vii, 178, 329.
on the common origin of the small planets, vii, 447.
Algæ of the U. S., *J. W. Bailey*, iii, 80, 399, vi, 37.
on collecting and preserving, *W. H. Harvey*, vi, 42.
Genera and Orders of, by *J. G. Agardh*, noticed, viii, 453.
Species of, by *F. T. Kützing*, noticed, viii, 454.
Tabulæ phycologicæ, by *F. T. Kützing*, noticed, viii, 454.
works on, by *W. H. Harvey*, noticed, viii, 453.

Algebra, *E. Loomis's* treatise on, noticed, ii, 298.
S. Chase's, ibid., x, 147.
C. W. Hackley's treatise, ibid., iii, 310.
Alger, F., notices of minerals, i, 121, 122.
edition of Phillips's Mineralogy by, noticed, i, 148.
on quartz containing rutile, x, 12.
on crystallized gold from California, x, 101.
Algeria, salt and salt springs in, iii, 432.
galena and iron ore in, vi, 271.
Algerite, viii, 103, x, 77.
Alkali, new organic, furfuroline, *G. Fownes*, ii, 407.
Alkalies, organic, on the artificial production of, ii, 407.
anilene, ii, 409.
from aldehyde, v, 122.
organic, composition of, *A. Laurent*, vi, 420.
Alkaline springs, ix, 123.
Allain and *Bartenbach*, on the extraction of gold from the copper ores of Chessy and Sain-Bel, ix, 297.
Allanite, x, 251.
Allen, J. H., on the geology of Tampa Bay, i, 38.
Alligators, tracks of living, iii, 125.
Allium sativum, allyle from, ii, 410.
Allophane, vii, 411.
Alluvial deposits of the Mississippi, *C. Lyell*, iii, 34.
Alluvium and drift of Ohio and the west, v, 205.
Almanac, observations on American Nautical, vii, 123.
Allyle, a new radical, and its compounds, ii, 410.
Aloes, bitter principle of, precipitated by charcoal, *Weppens*, ii, 260.
Alps, age of nummulite formation of, x, 265.
Altai, trend of, iii, 383.
Alumina, solubility of, in ammoniated water, iii, 256.
separation of, from oxyd of iron, *W. Kuop*, iv, 102.
new hydro-silicate of, viii, 122.
nitrate of, ix, 33.
separation of, from phosphoric acid, ix, 283.
Alum, made from greensand, *H. Wurtz*, x, 326.
Amalgamation of iron and steel to prepare for fire-gilding, ii, 266.
new mode of, *O. N. Stoddard*, vii, 431.
Amber, product of distillation of, viii, 114.
Ambystoma, species of, ix, 138.
America, Western, observations on, *J. D. Dana*, vii, 376.
coast of, vii, 377.
mountains of, vii, 380.
rivers and valleys, vii, 384.
climatal cause of distribution of forest and prairie regions, vii, 387, 389.
American Aborigines, ethnography and archæology of, *S. G. Morton*, ii, 1.
Academy of Arts and Sciences, Boston, memoirs of, i, 453, vi, 456, vii, 149, ix, 311.
American Academy of Arts and Sciences, Proceedings of, iii, 311, iv, 455, vi, 304, vii, 458, viii, 458.
Almanac, 1850, noticed, ix, 152.
Association for the Advancement of Science, vi, 294, 393, vii, 151, ix, 453, x, 136, 287, 293.
diseases, *Drake's* work on, ix, 456.
Ethnological Society, transactions of, vii, 456.
Philosophical Society, Philadelphia, Journal of, iv, 148, v. 304.
ib., Proceedings of, iv, 148, vi, 156, viii, 160, ix, 152, 453.
mounds and relics of, *E. G. Squier*, ii, 284, 287.
prime meridian, viii, 394, ix, 184.
geologists, tribute of respect to, by E. de Beaumont, v, 137.
Amethyst, coloring ingredient not manganese, ii, 413.
Amherst, cabinet and observatory of, vi, 293.
Amitus, species of, ix, 109.
Ammonia, amount of, in the atmosphere, ix, 115.
on compound, *A. Wurtz*, ix, 281.
nitrate of, on the decomposition of, *E. Millon*, iv, 269.
influence of, on nutrition, iv, 273.
bicarbonate of, exhaled from the lungs, iv, 274.
cuminate of, decomposed by heat, v, 413.
compounds, analysis of, ii, 112.
Ammoniacal salts in guano, ii, 267.
and magnesian phosphate, (struvite and guanite,) ii, 268.
Ammoniated water, solubility of alumina in, iii, 256.
Ammonium, sulphocyanid of, new method for, *J. Liebig*, iv, 101, 269.
Amoibite, a new mineral, ii, 416.
Amylaceous substances, digestion of, *Mialhe*, ii, 264.
Analogy, philosophical, v, 33, 319, 328.
Kirkwood's, ix, 395, x, 19, 26.
Analysis, to determine quantitatively iron in, *M. Margueritte*, ii, 257.
to determine mercury, *Millon*, ii, 258.
to separate cobalt from manganese, ii, 260.
new test for manganese, ii, 259.
to determine copper, *Pelouze*, ii, 259.
estimation of lead in, iii, 255.
of the oat, *J. P. Norton*, iii, 222, 318.
estimation of silver in, iii, 255.
Outlines of qualitative, followed in the Giessen Laboratory, notice of, iv, 455.
new mode for chromic iron, by *T. S. Hunt*, v, 418.
new mode of decomposing silicates in, *H. Wurtz*, x, 323.
of inorganic matter in blood, vi, 422.
chemical, *J. E. Bowman's* work on, noticed, vii, 455.
of allophane, vii, 411.
of ashes, *Fleitmann*, vii, 292.
of the ash of potatoes, oats and hay, ix, 20.
of bones, viii, 410.
of bone earth, viii, 271.
of a whale's calculus, ix, 118.

Analysis of corals, *B. Silliman, Jr.*, i, 189.
of glass, *Peligot*, ii, 114.
of glassy scoria of Kilauea, ii, 273.
of compounds of ammonia and cyanogen, *R. Smith*, ii, 112.
of some American minerals, *J. D. Whitney*, vii, 433. viii, 272.
ibid, *C. Fisher*, vii, 282.
ibid, *W. Fisher*, ix, 83.
ibid, *C. T. Jackson*, i, 119, x, 78.
ibid, *R. Crossley*, ix, 422, x, 77.
ibid, *Erni*, ix, 216, 286.
ibid, *Hermann*, ix, 408.
ibid, *T. S. Hunt*, ii, 30, viii, 103.
ibid, *C. U. Shepard*, ii, 249, iv, 279, vi, 249, 402, x, 127.
ibid, *B. Silliman, Jr.*, iii, 407, vi, 248, vii, 411, viii, 377.
ibid, *C. Rammelsberg*, ix, 429.
ibid, *H. Wurtz*, x, 80.
ibid, *W. J. Craw*, viii, 379, x, 117, 383.
ibid, *G. J. Brush*, viii, 390, x, 370.
ibid, see farther under *Mineral*.
of lavas of Hecla, vii, 114.
of phosphates of manganese, viii, 111.
of some sulphur acids, viii, 109, 110.
of certain gold-colored bronze antiquities found at Dowris, x, 111.
of meteorite of Braunau, v, 338, vi, 346, vii, 171.
of Texas and Lockport, ii, 370.
of Concord, N. H., iv, 353.
of Castine, Me., vi, 251.
of waters, for bromine, ii, 113.
B. Silliman, Jr., ii, 218.
M. H. Boyé, ix, 123.
of the Mediterranean, viii, 116.
of the Dead Sea, viii, 444.
of water from a hot spring in the region of the Great Salt Lake, x, 134.
of mineral waters, in Canada, ix, 266, vii, 175, viii, 364.
of acid waters, viii, 364, ix, 449.
of sea-water, *Forchhammer*, iii, 289.
fluorine in, *Wilson*, ix, 118, x, 413.
Analytical researches on sea-water, *Forchhammer*, iii, 289.
Anastatic printing, example of, i, 449.
Anatase, brookite and rutile, trimorphism of, ii, 416.
Anatomical homologies and fundamental type of the vertebrate skeleton, *R. Owen*, iv, 123.
Anchor-ice, *C. Dewey*, x, 277.
Ancient level of the sea in Finmark, i, 273.
Andalusites, transparent, from Brazil, ii, 119.
Andesite, x, 254.
Anemometer, modification of *Whewell's*, iii, 138.
Anemometry, contributions to, ix, 146.
Aneroid barometer, viii, 288.
examined by *Lovering*, ix, 249.
Angelot on the earth's contraction, iii, 178.
Angles, protractor for trisecting, *J. H. Alexander*, vii, 243.
Anilene, remarks on, ii. 409.
Anilene, compounds of phosphoric acid with, *C. Nicholson*, iv, 108.
decomposition of, by nitrous acid, *T. S. Hunt*, viii, 372.
Animal life, geological development of, i, 280.
chemistry, *Mulder*, iv, 402.
researches in, *J. Liebig*, iv, 135, 298.
natural classification of, v, 428.
hibernation of, v, 108.
sense of pain in, *G. R. Rowell*, vi, 89.
on the circulation and digestion in the lower, x, 123.
copper in the bodies of, vi, 422.
inorganic matter in the blood of, vi, 422.
motion of fluids in, v, 415.
relation of, to the elements in which they live, ix, 369.
wild, of Africa, x, 134.
see farther, *Zoology*.
Animalcules thoughts on, by *G. A. Mantell*, noticed, ii, 149.
see farther *Infusoria*.
Anisole and salicylic ether, by *A. Cahours*, ix, 279.
Annals of the Lyceum of Natural History, New York, see *Lyceum*.
Annales des Sciences Naturelles, new series of, i, 310.
Annuaire magnetique et meteorologique de Russie, i, 139.
Annual of scientific discovery, by *George Bliss, Jr.*, and *David A. Wells*, ix, 309, 454.
Anomodon Snyderi, new mammal, v, 106.
Anorthite in meteorites, *C. U. Shepard*, ii, 381.
Anser nigricans, *G. N. Lawrence*, iii, 435.
Ansted, D. T., work by, on Geology, noticed, iv, 300.
elementary course of Geology, Mineralogy, and Physical Geography, x, 144.
Ant nests, Cremastochilus in, *S. S. Haldeman*, vi, 148.
Ants, black, tenacity of life in, vi, 292.
Antares, ii, 280, 434.
Antarctic continent, i, 307, x, 137, 287.
ocean, diotomaceous vegetation of, *J. Hooker*, iv, 424.
Expedition, *Wilkes's*, vindicated, v, 287.
voyage of *J. C. Ross*, reviewed, vii, 313, viii, 14.
continent seen by *J. C. Ross*, vii, 325.
volcanoes of, vii, 328, 329.
flora, notice of *Hooker's*, viii, 161.
Antelope, a new species of, v, 279.
Anthony, J. G., on fossil Asterias, i, 441.
impressions of the soft parts of an orthoceras, vi, 132.
Anthon, solubility of gypsum, ii, 114.
Anthracite coal, contains distinct ducts, i, 407.
fluorine in, *G. C. Schæffer*, iii, 422.
vegetation of, *J E. Teschemacher*, iv, 420.
blast furnace for smelting iron with, *S. S. Haldeman*, vi, 74.
Antimoniate of lead, native, ii, 414.
Antimonite of mercury, native, viii, 127.

Antiquities of bronze, analysis of, x. 111.
Antje ship, hurricane of, 1842, i, 2.
Apatite in limestone, source of, *J. D. Dana*, ii, 88.
and apatoid in meteorites, ii, 379.
Aphanite, x, 254.
Aphides, *F. Walker*, preparing a work on, ii, 427.
Appalachians, origin of, *J. D. Dana*, iii, 98, 182.
W. B. and *H. D. Rogers* on, iii, 182
Apus longicaudatus, *J. LeConte*, ii, 274.
Arago, on the moon, cited, ii, 335.
opinion of, respecting foretelling the weather, and the moon's influence, iii, 141.
Ararat, *Abich's* excursion to, ii, 291.
Archæology of the American Aborigines, *S. G. Morton*, ii, 1.
Archiac, work by, on the Progress of Geology, noticed, vi, 134.
Archives des Sciences Physiques et Naturelles, a new journal, i, 453.
Architects, Hints to young, a work by *G. Nightwick*, noticed, iv, 302.
Argonauta, fractured and repaired, *C. B. Adams*, vi, 137.
Arkansas, minerals of, ii, 249, iv, 279, viii, 274.
Arkansite, ii, 250, iv, 279, vii, 433, viii, 274.
Arkose, viii, 424.
Arragonite and Calc Spar isomeric, ii, 417.
Arseniate of magnesia and ammonia, iii, 423.
Arsenical preparations, antidote for, i, 108.
and antimonial taches, iodine for distinguishing, ii, 111.
Arsenic in mineral waters, iii, 260, vi, 422, ix, 418.
in vinegar, iv, 272.
an organic compound containing, *Wöhler*, viii, 269.
Arseniferous sulphuric acid, how purified, i, 111.
Artesian wells of Grenelle and Mondroff, i, 264.
at Fauvelle, iii, 135.
in the Duchy of Luxembourg, iii, 142.
Arctic Expedition in search of Sir John Franklin, vi, 149, 446.
Arctic regions, navigation of, viii, 292.
Artificial stone for grinding, i, 302.
marbles, ii, 266.
building material, vi, 145, 446.
paving material of India rubber, vi, 446.
specular iron, i, 430, ii, 411.
crystallization of gems, *Ebelmen*, vii, 427.
asbestus, i, 429.
aventurine, i, 430.
Ashes of fossil coal microscopically examined, i, 124, 407.
analysis of, *Fleitmann*, vii, 292.
Asia, western, meteorological observations in, ii, 72.
remarks on the weather of, ii, 77.
Asia, Koordistan, notices of, springs, mines, &c., iii, 347.
Asia Minor, emery in, vi, 272, vii, 283, x, 354.
Asparamide, iii, 258.
Asparagine and aspartic acid, vi, 420.
Aspasiolite, a new mineral, analysis of, v, 381, 384.
Association of Geologists and Naturalists, notices of, ii, 144, 441, iv, 146, 427, v, 102, 243, 285.
Association American, time of meeting and officers of, vi, 294; meeting in 1848, vi, 393; in 1849, vi, 401, viii, 145, 311, 444, ix, 454; in 1850, ix, 453, x, 136, 287.
British, ii, 441, iii, 133, iv, 238, vi, 445, vii, 270, viii, 444, x, 287, 303.
Asteroid, tenth, Diana, vi, 278.
Diana, not discovered, vii, 290.
new, Metis, vi, 140, 278, 438.
Hebe, elements of, vi, 437.
Asteroids, orbits of, *B. A. Gould*, vi, 28.
times of discovery of, x. 308.
Asterias, two species found in blue limestone, i, 441.
Astræa, a new planet, i, 293, 443, ii, 434.
a genus of zoophytes, *J. D. Dana*, ix, 295.
Astringent substances for tanning, test for, vi, 112.
Astronomical notices, i, 289, 443.
instruments, i, 298.
observations, *M. F. Maury's*, volume of, noticed, iii, 150, 278.
J. M. Gilliss's, noticed, iii, 149.
memoir on colors of stars, by *P. B. Sestini*, noticed, iii, 281.
clock with galvanic register, vii, 206.
electric telegraph adapted to, viii, 231, x, 151.
expedition to Chili, circular for, viii, 303.
Journal, by *B. A. Gould*, viii, 449, ix, 151, 309.
Astronomy, outlines of, by *J. F. W. Herschel*, noticed, viii, 456.
progress of, iv, 240.
Atheriastite, x, 246.
Atlantic, facts concerning, *M. F. Maury*, vi, 399.
waves, *Scoresby*, x, 386.
Atlas, Physical, of natural phenomena, *Johnston's*, ix, 454.
Atmidoscope, vi, 296.
Atmosphere, height of plane of vapor of, in tropics, *J. C. Ross*, vii, 315.
on the extinction of light in, x, 129.
in the moon, ii, 335.
E. Loomis, on, ii, 432.
Atmospheric currents, remarks on the cause of, *W. C. Redfield*, iii, 284.
waves, report on, *W. R. Birt*, iv, 433.
Atomic weight of Iron, i, 103.
of Zinc, i, 104.
of Uranium, i, 262.
of Titanium, iv, 103.
of Potassium, viii, 411.
of Carbon, viii, 411.
of Silver, viii, 411.
of Silica, viii, 414, ix, 284.
of Barium, ix, 176.
of Ruthenium, ix, 422.
of Molybdenum and sulphur, x, 264.
weights, table of, ix, 217, 368.
volume of some minerals, ix, 220, 407, 429, x, 121.

Atomic volume of some isomorphous oxyds of the regular system, *C. Gerhardt*, iv, 405.
of sulphur and nitrogen, on anomalies in, *T. S. Hunt*, vi, 170.
Avogadro on, i, 114.
Atoms, volumes of, i, 114.
views of, *Faraday* on, ii, 401.
of, *J. D. Whelpley* on, ii, 401.
Atoms, divisibility of, vi, 329.
forms and attraction of, *J. D. Dana*, iv, 364, v, 100.
Atops trilineatus, identical with Triarthus Beckii, v, 107, 322.
Attraction, cohesive, *J. D. Dana*, iv, 364, v, 100.
Auckland islands, vii, 322.
Audouard, arsenic in chalybeate waters, vi, 422.
Auriferous glass, vi, 255.
Augite, isomorphism with Miargyrite, ix, 429.
Aurora Borealis, Nov., 1846, *E. C. Herrick*, iii, 126.
of Nov. 17, 1848, vii, 127, 293.
of Oct. 1839, *J. C. Ross*, vii, 315.
cause of, ix, 450.
Report on, by a commission to Scandinavia, noticed, iv, 142.
Australis, *J. C. Ross*, vii, 322, viii, 16.
Auroral arches, height of, *T. Chevalier*, iv, 436.
belt, April 7, 1847, iii, 440, iv, 145.
bow of April 7, 1847, *E. C. Herrick*, vii, 126.
Austen, *T.*, monograph on fossil crinoidea, noticed, ii, 446.
Australia, extinct mammals of, i, 129.
natives of, i, 302.
rivers discovered in, ii, 290.
mines in, ii, 291, iv, 255, vi, 134, vii, 138.
native gold in, iii, 143, viii, 290.
fossils from, *J. D. Dana*, iv, 151, v, 433.
flood in, vii, 130.
denudation in, ix, 289.
expedition into, projected by Kennedy, vii, 137.
climate of, *J. Gould*, x, 131.
low state of development of the mammals and birds in, x, 124.
Autographs, collection of, for sale, vi, 448.
Aventurine, artificial, i, 430; v, 412.
glaze for porcelain, viii, 440.
Avogadro, on atomic volumes, i, 114.
Avenine, iii, 329, 331, v, 28.
Axinite in fossiliferous rock, ii, 123.
in Maine, vii, 286.
Azores, new mineral from, iii, 32.

B.

Babbage, *C.*, work on the temple of Serapis by, noticed, vi, 152.
Babinet, on planetary nebulous masses near the sun, iii, 444.
on a planet beyond Neptune, vi, 438.
Babingtonite at Athol, Mass., viii, 275.
Bache, *A. D.*, Report by, on the Coast Survey, noticed, iii, 300, v, 299, 307, vii, 311, x, 143.
Bache, *A. D.*, work by, on Magnetic and Meteorological Observations of Girard College, noticed, vii, 455.
Bachelder, *J. M.*, electricity of bands of leather, iii, 250.
Bacon, *J.*, microscopic examination of gun-cotton, iv, 445.
Bagrationite, viii, 126.
Baierine, viii, 274.
Bailey, *J. W.*, new American Desmidiaceæ, i, 126.
on vegetable ducts in anthracite coal, i, 407.
Algæ of the United States, iii, 80, 399.
notice of d'Orbigny's work on Foraminifera, iv, 452.
on Spencer's microscopes, v, 238, 285, 443, vii, 265.
localities of Algæ, vi, 37.
infusoria of Maryland, vii, 437.
infusorial stratum in Florida, x, 282.
Baird, *S. F.*, editor of the Iconographic Encyclopædia, viii, 451, ix, 151, 309.
description of new reptiles, ix, 137.
Baird, *W.*, work on the Natural History of British Entomostraca, x, 145.
Bakewell, *R.*, whirlpool and rapids at Niagara, iv, 25.
Balanus, tertiary, Tampa Bay, ii, 400.
eyes of, *J. Leidy*, vi, 136.
Balfour, elected to the botanical chair of Edinburgh University, i, 146.
Balfour's manual of Botany, noticed, viii, 303.
Banana, paper from, ii, 284.
Banca, on the island of, *T. Horsfield*, vii, 86.
tin mines of, viii, 291.
Barbadoes, geological structure of, *R. H. Schomburgk*, iv, 416.
Barium relations to strontium, calcium and magnesium, *Horsford*, ix, 176.
Bark, Peruvian, v, 291.
Barlow, *W. H.*, cause of diurnal variations of the magnetic needle, ix, 445.
Barometer, high state of, exterior to the route of a storm, *W. C. Redfield*, i, 161.
the necessitated depression of, under the rotative action of storms, *W. C. Redfield*, ii, 311, 317.
the effects on, by two or more converging or consecutive storms, *W. C. Redfield*, ii, 314, 317, and plate.
aneroid, viii, 238, ix, 249.
Barral, on nicotine, v, 413.
Barrande, *J.*, Silurian System of Bohemia by, noticed, viii, 158.
Barreswill, on perchromic acid, v, 123.
on dehydration of sulphuric acid, v, 124.
Barry, *M.*, physiological discoveries, vi, 433.
Bartenbach and *Allain*, extraction of gold from copper ores, ix, 297.
Bartram and Marshall, memorials of, by *W. Darlington*, viii, 456, ix, 85.
Baryta, preparation of hypophosphate of, *Wurtz*, ii, 112.
of caustic, *E. Riegel*, iii, 424.
Barytic water and salts of baryta, preparation of, vi, 423.

Basalt of Lake Superior, iv, 118.
Basaltic rocks and columns, Kerguelen's Islands, vii, 318.
Base line, measurement of, v, 309.
Bases, vegetable, how affected by the bicarbonates, i, 260
Basilosaurus, *J, Müller*, iv, 421.
Bat from Africa, *E. Hallowell*, ii, 273.
Baudrimont, M. A., teratology of crystallized bodies, v. 419.
Beaches, ancient sea, *R. Chambers*, iv, 323.
Lake Superior, vi, 19.
see farther, *Terraces.*
Bear Mountain railroad, reports on, and geological section, i, 311.
Beaumont, Elie de, tribute to American geologists, v, 137.
Beaver, range of, in United States, iii, 434, iv, 285, vi, 297.
lower jaw of, x, 61.
Beck, L. C., work by, on adulterations, noticed, ii, 446.
analysis of hypersthene, x, 147.
Becquerel, E., on the electric conductibility of certain bodies, ii, 255.
conducting powers of metals, viii, 185.
ibid of solids and liquids, viii, 333.
on electricity from muscular contraction, viii, 405.
Beer and *Mädler*, work on the moon, cited, ii, 335, 336.
Beeswax, *B. C. Brodie* on, vii, 427.
Beke, C. T., on the Nile, iii, 447.
Belemnites, note on, i, 285, ix, 438.
Belemnoteuthis, ix, 438.
Ben, fat acids in the oil of, iv, 271.
Bensch, A., on sugar of milk in the milk of Carnivora, v, 119.
Bent's Fort, notes on the region, vi, 387 389.
Benzamid, sulphuretted, *A. Cahours*, ix, 278.
Benzenberg, obituary of, ii, 297.
Benzoate of potash, action of chlorine on, *St. Evre*, viii, 108.
of lime, the products of dry distillation of, ix, 276.
Benzoic acid, from hippuric, iii, 257.
compounds, iii, 257.
series, researches on, by *G. Chancel*, ix, 275.
Benzole, *C. B. Mansfield*, ix, 283.
Benzoline obtained from hydrobenzamide, ii, 408.
Bergemann, C., on the meteoric iron of Zacatecas, x, 255.
Bequard and *Barreswill*, on sugar in the liver, x, 112.
Berkeley's theory of vision, *D. Brewster*, vii, 273.
Whewell, vii, 274.
Berkeley, M. J., Mycology of North America, vi, 350, viii, 401, ix, 171, x, 185.
Berlin, N. J., description and analysis of tritomite, x, 245.
analyses of pyrophyllite from Westanâ, x, 249.
analysis of thulite, x, 251.
on the atomic weight of molybdenum, x, 264.
Bernard, C., pancreatic secretion, vi, 276, viii, 140.
Bernard, C., on the production of sugar in the urine by wounding the brain, x, 113.
Bertholdt, on the increase of the nail and hair in man, x, 129.
Berzelius, J. J., on ozone, iv, 265.
obituary of, vi, 448.
Besanez, von Gorup, butyric acid in the soap-tree, ix, 116.
Bessel, F. W., obituary of, ii, 145.
life, researches, and discoveries of, iv, 305.
zones of stars commenced, iv, 311.
Bibliography, see *Works.*
Bibliothèque Universelle de Genève, i, 453.
Biela's Comet, i, 293, 446, ii, 435, 439.
Bigelow, A., sandstone rocks in Baldwin Co., Ala., ii, 419.
Bile, new test for, i, 105.
crystallized, how prepared, v, 410.
Binney, A., obituary of, iii, 451.
Biogen, observations on, *E. Desor*, vii, 395.
ibid, *C. Girard*, ix, 399.
Bird, G., Natural Philosophy of, noticed, vi, 153.
Birds' bones in the Wealden, i, 274.
Birds, hybrids among, *S. G. Morton*, iii, 203.
spring migrations, Marietta, Ohio, 1846, *S. P. Hildreth*, iii, 214.
structure of foot in embryos of, *L. Agassiz*, vi, 432.
of Mexico, *G. A. McCall*, vii, 114.
fossil of New Zealand, i, 129, v, 134, 431, vii, 28, ix, 147.
of Australia and New Zealand, low state of development of, x, 124.
see farther under *Zoology.*
Birt, W. R., on atmospheric waves, iv, 433.
Bismuth, telluret of, from Virginia, *C. Fisher, Jr.*, vii, 282.
ibid, *C. T. Jackson*, vi, 188, x, 78.
crystalline polarity of, *M. Faraday*, vii, 425.
Bismuthic gold, iv, 281.
Bitter extracts, precipitated by charcoal, ii, 260.
Bittern of a saline on the Kiskiminetas, vii, 74.
Bizio, on potash and soda, i, 105.
Bladder, electricity on the bursting of, ii, 255.
Blainville, Ducrotay de, obituary of, x, 138, 296.
Blake, E. W., laws governing flow of elastic fluids through orifices, v, 78.
propagation of pulses in elastic media, v, 372.
laws of motion in reference to expansion of elastic fluids, ix, 334.
Blake, W. P., crystals of oxyd of chromium, x, 352.
Blast furnace in the manufacture of iron, i, 170.
ibid, *S. S. Haldeman*, vi, 74.
ibid of Ystalyfera, use of gases of, *J. P. Budd*, vii, 303.
Blasting rocks, new mode, i, 302.
Bliss, G., Jr., Annual of scientific facts, ix, 454.

Blondeau, conversion of fibrine and caseine into fat, v, 266.
Blood, human, analysis of ashes of, i, 107.
presence of carbonates in, *R. F. Marchand*, ii, 263.
cause of circulation of, *J. W. Draper*, ii, 276.
researches on, *Dumas*, iii, 108.
new mode of analyzing inorganic matter in, and on metals in, vi, 422.
fluorine in, x, 413.
corpuscle, development of in the animal series, i, 128.
Blowpipe, on cupellation with, iii, 409.
oxy-hydrogen, improvements in, *R. Hare*, iv, 37.
apparatus for the fusion of rhodium, iridium, &c., *R. Hare*, iv, 44.
characters of pyrrhite, ix, 423,
Blum and *Delfss*, on stiblite, v, 268.
Blum, J. R., on pseudomorphism, vi, 267.
Blunt, model of the moon's surface, ix, 143.
Blyth, J., on the composition and metamorphoses of conine, x, 259.
Bodenite, a new mineral, ii, 415.
Bohemia, metallurgical industry of, vi, 146.
Boiling point, affected by the cohesion of liquids, ii, 256.
of organic substances, i, 115.
of water at different heights, i, 134.
Boissier, Voyage Botanique, i, 454.
Bolax glebaria, iii, 121.
Bolley, P., on a new borate of soda, viii, 110.
preparation of chromic acid, ii, 261.
Boltonite, analysis of, viii, 391.
Bond, G. P., discovery of comets, i, 447, ii, 137, 138, 280, iii, 443, iv, 287, vii, 449.
discovery of the eighth satellite of Saturn, vi, 437.
Bond, W. C., nebulæ in Orion resolved by Cambridge telescope, iv, 426.
Bone, growth of, in the hog, *Boussingault*, iii, 258.
Bones, analyses of, viii, 410.
see farther under *Zoology*.
Bone earth, analysis of, viii, 271.
Bonpland, obituary of, ii, 297.
Boracic acid in Tuscany, ix, 431.
influence of, in vitrification, ix, 305.
compounds of, with ether, ii, 412.
Boracite amorphous, *Karsten*, iv, 415.
Borate of soda, new, *P. Bolley*, viii, 110.
Borck, analysis of eudnophite, x, 246.
analysis of sodalite, x, 250.
Boring apparatus of molluscs, i, 130, vii, 288.
power of snails in limestone, *W. C. Trevelyan*, ii, 276.
Boron, bromid of, ii, 113.
Bory de St. Vincent, obituary of, iii, 452,
Boselaphus Derbianus, a new antelope described by *Gray*, v, 279.
Bosphorus, level of, vi, 294.
Boston Society of Natural History, Proceedings of, ii, 155, 303, iii, 455, iv, 149, 303, v, 151, 460, vi, 456, viii, 160, 310, ix, 458, x, 149, 304.
ibid, Journal of, i, 311, iii, 454, vi, 299, ix, 312.
Botanic garden, new, at Cambridge, England, iii, 296.
Botanical works, see *Works*.
notes on Madeira, Teneriffe and Cape de Verds, from Vogel's Voyage, iv, 119.
garden at Kew, iv, 251.
on colored glass for glazing palm house at, iv, 431.
mission to India, v, 290.
visit to Bosnia (Sendtner's), v, 454.
Botany, North American, (species of Isoetes and Marsilea,) *A Braun*, iii, 52.
of Mexico, i, 455.
of Japan and United States, analogy between, ii, 135.
some observations on progress in, iv, 251.
fossils and geology of the coal rocks of Australia, v, 273.
of South America, v, 454.
of New England, *E. Tuckerman*, vi, 224.
of Antarctic regions, viii, 161.
of Texas, new genera in, *A. Gray*, iii, 274.
Gray's Manual of, reviewed, v, 377.
Böttger, incandescence of iron, copper, &c., in the vapor of alcohol, ii, 260.
amalgamation of iron and steel, to prepare for fire-gilding, ii, 266.
Boué, Essai d'une carte Géologique, i, 310, ii, 272.
on the structure of the globe, iii, 393.
Boulders and elevations of Scandinavia, *Desor*, iii, 313.
Bourbon, birds of the isle of, vii, 65.
Boussingault, on the urine of herbivorous animals, i, 264.
on the nutritive power of dry and green fodder, iii, 106.
on the development of vegetable matter in wheat, iii, 106.
growth of bone in the hog, iii, 258.
Boutigny, on the projection of bodies on hot surfaces, i, 99.
facts relating to incombustibility, fire-ordeal, &c., viii, 431.
Bouvé, T. S., review of Tuomey's report, viii, 61.
on the Pygorhynchus Gouldii, iii, 437.
Bowditch, H. I., infusoria on the teeth, ix, 442.
Bowman, J. E., work on Chemical Analysis, noticed, vii, 455.
Boyé, M. H., analysis of concretion from horse's stomach, iv, 274.
acetate of lime in coal pits, iv, 275.
bittern of a saline, vii, 74.
analysis of Schuylkill water, ix, 123.
Braconnot, H., sugar of milk in the cotyledons of seeds, x, 113.
Brain, size of, in various races of men, ix, 246.
Brandisite, a new mineral, v, 267, vii, 113.
Braun, A., North American species of Isoetes and Marsileæ, iii, 52.
Braunau meteoric iron, v, 285, 338, vii, 171.
Brazil, geology of, i, 308.
compact diamond of, vii 433.
Breithaupt on digenite and cuproplumbite, ii, 414.
on loxoclase, ii, 414.

Breithaupt, on manganocalcite, v, 268.
Brewer, W. H., analysis of Hudsonite, ix, 228.
analyses of Margarodite, x, 115.
Brewster, D., on crystals and fluids in topaz, v, 420.
on Berkeley's theory of vision, vii, 273.
address before British Association in 1850, x, 305.
polarizing structure of the eye, x, 394.
on some phenomena of the polarization of the atmosphere, x, 400.
on a new membrane investing the crystalline lens, x, 400.
Bridges, military, work on, noticed, viii, 307.
Brisbane, T. M., magnetic observatory of, i, 138, iii, 115.
Britain, ancient mining in, viii, 96.
British Museum, viii, 294.
Association, ii, 441, iii, 133, iv, 238, vi, 445, vii, 270, viii, 444, x. 305.
R. I. Murchison's address before, iii, 134, iv, 239.
D. Brewster's address before, x, 305.
fossil mammals, ix, 149.
sea weeds, a history of, i, 454.
Brochantite and Krisuvigite identical, ii, 417.
Brocklesby, J., on iridescent silver, i, 112.
supernumerary rainbows, iv, 429.
influence of color on dew, vi, 178.
elements of meteorology by, noticed, vi, 299.
Brodie, P., a History of fossil insects by, noticed, i, 150.
Brodie, B. C., on wax, vii, 427.
Bromide of silver in ancient coins, i, 430.
Bromine in waters, determination of, ii, 113.
from bittern, vi, 293, vii, 74.
new mode of detecting, vii, 106, ix, 114.
impurity of commercial, viii, 116.
impure, bromid of carbon from, v, 124.
Bromo-boracic acid, ii, 113.
Brongniardite, x, 247.
Brongniart, A., obituary of, v, 141.
extracts from a discourse pronounced upon, by *Elie de Beaumont*, v, 155.
on plants of different geological epochs, vi, 120.
Bronn's work on organic remains, iii, 311.
Brontozoum, iv, 50.
Bronzing metals, new mode of, vi, 423.
Brookite, anatase and rutile, trimorphism of, ii, 416.
Arkansite identical with, viii, 274.
in North Carolina, viii, 275.
Brorsen, comets discovered by, ii, 137, 138, 439, v, 134.
Brown, on the existence of the color, vii, 129.
Brown, R., on coal beds and salt lakes of Cape Breton, i, 278.
Brown, P. A., on torpidity and hibernation, v, 108.
Brown, A., on cypress timber, v, 15.
Browne, D. J., work on the trees of America by, noticed, ii, 442, iii, 146.
Brucite, nemalite identical with, vii, 434.
Brucke, E., on the color brown, vii, 129.
Brumley, R. T., beaver in Alabama, iv, 285.
Brunner, on contraction of ice in cooling, i, 117.
Brush, G. J., analysis of albite, viii, 390.
Indianite, viii, 391.
analyses of spodumene, x, 370.
determinations of water in the anhydrous prehnite of Whitney, x, 121.
Bryce, J., on altered dolomites, viii, 420.
Buch, L. von, volcanic band in the East Indies, iii, 398.
on the geographical limits of the chalk formation, x, 268.
Bucholzite of Chester, Pa., ii, 418.
Buckley, S. B., on the zeuglodon, ii, 125.
on the range of the beaver, iii, 434.
Budd, J. P., use of gas from furnaces of Ystalyfera, vii, 303,
Buff, electricity from muscular contraction, ix, 304.
Building material, action of frosts on, vi, 287.
artificial, vi, 145.
Bull, B. W., analyses of waters from Hartford, Ct., iv, 335.
on emulsine, viii, 74, 272.
Bullets, new mode of making, vi, 288.
Bullina petrosa, v, 433.
Bunbury, C. T. F., coal plants of Tuscaloosa, Ala., ii, 228.
from Frostburg, Maryland, ii, 427.
from near Richmond, Va., iv, 114.
Burr, E. F., theory of transit corrections, iv, 258.
on the Neptunian theory of Uranus, vi, 236.
Burr-stone, South Carolina, viii, 72.
Butter, Shea, composition of, ix, 116.
Butyric aldehyde, vii, 108.
Butyrone, action of nitric acid, ix, 278.

C.

Cabinet of geology and mineralogy for sale ix, 147.
of minerals for sale, i, 309.
Cabbage plants of Kerguelen's Island, vii, 319.
Cabot, J. E., on a new Pyranga, iii, 436.
on Sterna cantiaca and a new Wren, vi, 136.
American and European oyster catcher, different species, vi, 433.
narrative of a tour to Lake Superior, ix, 455.
Cacoxene in Tennessee, v, 421.
Cactus at Kew, weighing a ton, iv, 251.
Caffeine, action of potash on, ix, 419.
Cahours, A., action of perchlorid of phosphorus on organic substances, iii, 256.
on anisole and salicylic ether, ix, 279.
on sulphuretted benzamid, ix, 278.
composition of chloropicrine, ix, 278.
on furfurol, x, 257.
Cairo, petrified forest near, i, 433.
Calamine, x, 249.
Calculi, urinary, work on, by *R. Peter*, noticed, iii, 299.
Calculus, analysis of, from the bladder of a whale, ix, 118.

Calendar stone of Mexico, *E. G. Squier*, vii, 153.
California, Upper, *Fremont's* report on, vi, 280.
notices of, vi, 376.
quicksilver mines in, vi, 270.
gold in, vi, 271, vii, 125, 262, 291.
climate of, vii, 291.
crystals of gold of, *Alger*, x, 101.
notes on, *J. D Dana*, vii, 247.
on some points in the physical geography of, *J. D. Dana*, vii, 376.
Shasty Peak in, vii, 249.
chalybeate spring, vii, 250.
observations on, and on the gold of, *C. S. Lyman*, vii, 291, 305, 307, viii, 415.
platinum and diamonds in, viii, 294.
analysis of gold of, viii, 449.
Californian Gulf, discovery of, &c., vii, 378.
peninsula, vii, 388.
Caloric, see *Heat*.
Calorific power of the light of the moon, *Melloni*, ii, 256.
Calotype on glass, vi, 259.
Calvert, F. C., on the preparation of chlorate of potash, x, 262.
Cambrian system, objections to, *R. I. Murchison*, iii, 404.
Cameos of shell, v, 289.
Cameron's Nautical Slide Rule, notice of, viii, 309.
Campbell's Island, Antarctic seas, vii, 322, 323.
Camphor, *C. List*, vii, 430.
Canabalism of Polynesia, i, 306.
Canada, report on geology of, by *Logan*, noticed, viii, 154, ix, 12.
mineral springs of, *T. S. Hunt*, viii, 364, ix, 266.
Cancer mercenaria, x, 122.
Cancrinite, i, 119, vii, 436.
Cannel coal, fluor spar in, ii, 124.
Cantu, G. L., new test of bromine and iodine, vii, 106.
Caoutchouc, from drying oils, iii, 426.
singular effect of latent heat of, *C. G. Page*, iv, 341.
Cape de Verds, notes on, iv, 123.
recent volcanic eruption at, iv, 146.
Caprylone, viii, 271.
Carbon, compounds of iron with, *Karsten*, iv, 104.
amount expired by man, *E. A. Scharling*, ii, 262.
of graphite, determination of, v, 352.
preparation of oxychlorid of, x, 258.
volatilization of, viii, 413.
Carbothialdine, *J. Redtenbacher*, viii, 107.
Carey, J., on three new Carices, and a new Rhynchospora, iv, 22.
on some of the N. Y. Chenopodiaceæ, vii, 167.
Carices Americanæ, &c., *H. P. Sartwell*, noticed, vi, 149.
Caricography, *Kunze's* work on, noticed, ii, 301.
Drejer's work on, noticed, ii, 302, iii, 148.
Boott's memoir on, noticed, ii, 427.
C. Dewey, ii, 245, iii, 171, 354, iv, 343, v, 172, vi, 244, viii, 348, ix, 29.
A. Gray on, iv, 19.
Caricography, *J. Carey* on, iv, 22.
Carnelian, oxyd of iron, coloring matter of, ii, 413.
Carnivora, milk of, i, 263.
sugar of milk in milk of, v, 119.
Carolinas, new and rare plants of, *M. A. Curtis*, vii, 406.
Carpenter, W. B., on microscopic structure of shells, i, 283.
Elements of Physiology by, noticed, ii, 147.
on the structure of the Nummulina, x, 275.
Carpenter, W. M., on fossil bones from Tennessee and Texas, i, 244.
muscles of the glass snake, ii, 89.
Carter, H. J., fresh water sponges of Bombay, x, 301.
Cascade mountains, Oregon, vii, 381.
Case, W., a species of Helix and Planorbis, iii, 101.
Caseine, iii, 329, iv, 403.
products from, ii, 112, v, 119, vii, 107.
Caspian Sea, level of, vi, 148.
Cassin, J., on the Cymindis Wilsonii, iv, 285.
new species of birds, vii, 115.
Cassini, J. D., obituary of, ii, 145.
Castor, iii, 430, x, 250.
oil, acids of, viii, 106.
Castoreum, examination of, x, 259.
Castoroides Ohioensis, x. 62.
Catalogue of recent shells, also found fossil, i, 404.
Catapleiite, x, 245.
Cats, hybrids among, iii, 48, 49.
Caucasus, volcanic plateaux of lower, v, 423.
Cave, (called Cataract,) Schoharie, i, 434.
Cells, formation of, i, 281, 436.
Ceramohalite, vii, 113.
Cerotine and cerotol, vii, 428.
Cervus, two American species distinct from European, iii, 436.
Chalcedonic corals of Florida, ii, 43.
Chalk and coal, fires from, iii, 451.
formation, geographical limits of, x, 268.
Challis, new theory of polarization of light, iv, 412.
Chamæa, a new genus of birds, *W. Gambel*, iv, 286.
Chambers, R., ancient sea margins, iv, 323, vii, 1, viii, 33.
reply to, by *J. D. Dana*, viii, 86.
Channing, W. F., work on Medical application of Electricity, noticed, viii, 308.
reaction of solid carbonic acid with bases, v, 184.
Chara, influence of electric currents on, *Dutrochet*, ii, 133.
Chancel, G., on the benzoic series, ix, 275.
action of nitric acid on butyrone, ix, 278.
on the dry distillation of benzoate of lime, ix, 276.
Chantonnite, a new meteoric mineral, ii, 381.
Charcoal, mineral precipitations by, ii, 260.
Charts, ecliptic star, vii, 290.
Chase, S., treatise on Algebra, noticed, x, 147.
Chatin, A., on iodine in fresh water plants, x, 110.

Chauvenet, Wm., on determination of longitude by the moon, viii, 226.
Treatise on Plane and Spherical Trigonometry, noticed, x, 300.
Chemical works noticed, *Turner's* Chemistry, ii, 148.
Fresenius, C. R., on chemical analysis, iii, 149.
Silliman, B., Jr., Chemistry, iii, 144.
Chemistry of the Four Seasons, iii, 145.
Gerhardt, C., on organic chemistry, iii, 145, iv, 93, 171.
Bowman, J. E., on chemistry and chemical analysis, vii, 455.
Gmelin's Chemistry, vii, 456.
Knapp, F., Chemical Technology, viii, 156, 308.
Liebig and Kopp's annual report, noticed, x, 304.
Chemical equivalents, table of, ix, 217, 368.
notation, Gerhardt's, ix, 364.
action, light preventing, *R. Hunt*, vii, 272.
classification, *T. S. Hunt*, vi, 170, viii, 89.
Chemistry, facts in physiological, *J. Liebig*, iv, 135, 298.
physiological, *G. T. Mulder*, iv, 402.
Regnault's elements of, noticed, x, 304.
Cheirotherial footprints in Pennsylvania, *C. Lyell*, ii, 25.
Chenopodiaceæ from near New York, *J. Carey*, vii, 167.
Chenu, Illustrations Conchyliologiques, v, 459.
Chermes Castaneæ, ix, 108.
Chester, C. T., on Morse's telegraph, v, 55.
Chicory coffee, *A. Chevalier*, viii, 441.
Chihuahua, silver and copper mines of, vi, 384, 385.
Chikiswalungo iron furnace, v, 296, vi, 74.
Chili, astronomical expedition to, viii, 303.
coal in, vi, 146.
Chimpanzee, daguerreotypes of, vii, 303.
cranial capacity of, ix, 39.
China, mineral coal in, *R. C. Taylor*, ii, 141.
Chinese map, ii, 293.
mirror, analysis of, i, 118.
vegetable tallow, ix, 116.
Chiolite, a new mineral, iii, 267.
Chippewa Land District, report of geological survey of, *D. D. Owen*, reviewed, x, 1.
Chladnite, ii, 381, vi, 413.
Chloral, new mode of forming, i, 260.
Chlorastrolite, a new mineral, vi, 270.
Chlorates and chloric acid, preparation of, v, 262.
Chlorid of sodium, solubility of, in alcohol, v, 124.
Chlorine, new mode of obtaining, i, 257, 428.
action of, on benzoate of potash, viii, 108.
on lactic acid, x, 258.
Chlorite with rutile in quartz, x, 14, 350.
Chloritoid, analysis of, viii, 123, 272.
Chloro cyanilid, iii, 258.
Chloroform, v, 240.
varieties of, ix, 115.
action on the sensitive plant, viii, 115.
new process for, vi, 256.
purification and properties of, x, 261.
Chloroform used for a motive power, vii, 304.
used as a solvent, vii, 305.
Chloroniceic acid, viii, 412.
Chlorophyllite, ii, 418, iii, 266.
Chloropicrine, *J. Stenhouse*, vii, 429.
composition of, by *A. Cahours*, ix, 278.
Chondrodite in limestone, source of, *J. D. Dana*, ii, 88.
analysis of, *W. Fisher*, ix, 85.
Christian VIII, obituary of, x, 297.
Christmas Harbor, Kerguelen's Island, vii, 318.
Christy, D., letters on geology, vi, 298.
Chromates, new process for obtaining, v, 262.
Chrome, new chlorid and oxyd of, i, 102.
nitrate of, ix, 33.
ore in meteorites, ii, 383.
Chromic acid, preparation of, *M. Bolly*, ii, 261.
oxydation of gelatine by, *Marchand*, ii, 413.
iron, new mode of analyzing, v, 418.
of Asia Minor, *J. L. Smith*, vii, 285.
oxyd, crystals of, *W. P. Blake*, x, 353.
Cicada septendecim, *S. P. Hildreth*, iii, 216.
T. W. Harris, iii, 218.
Cidaris Alabamensis, ii, 273.
Cincinnati Astronomical Observatory, i, 297, 315.
Cinnabar in California, vi, 270.
Circulating fluid of Planorbis, i, 442.
Circulation of the blood, cause of, *J. W. Draper*, ii, 276.
in animals, *L. Agassiz* x, 123, 273.
Classification, use of homology and analogy in, iii, 339.
of animals, general views on, *J. D. Dana*, i, 286, iii, 337.
bearing of embryology on, *Milne Edwards*, v, 428.
ibid, *Barry*, vi, 433.
of crustacea, *J. D. Dana*, i, 225.
of zoophytes, *J. D. Dana*, iii, 340.
of birds, observations on, *L. Agassiz*, vi, 432.
Claudet, effect of different colored rays of light in photography, vii, 272.
on the dynactinometer, x, 401.
Claus, on ruthenium, i, 103, ii, 111, ix, 422.
Claystones, v, 110.
Cleavage joints in rocks, general course and origin of, iii, 389, 393.
slaty, *D. Sharpe*, iii, 430, iv, 110.
of crystals, cause of, *J. D Dana*, iv, 378.
irregular, *A. Baudrimont*, v, 419.
Clemandot and *Maes*, influence of boracic acid in vitrification, ix, 305.
Climatal cause of distribution of forests and prairies in Western America, vii, 389.
Climate of Australia, *J. Gould*, x, 131.
of France, *Martins*, x, 396.
supposed variations in, ii, 432.
of Utica, vi, 256.
as indicated by opening and closing of the Hudson river, vi, 296.
of Upper California, vii, 248, 291, 339.
of Italy, vii, 304.
of Tierra del Fuego, vii, 392.
diurnal changes of temperature, viii, 42, 218.
mean sky covered by clouds, viii, 50.

Climate, variations of force of wind for 1844, viii, 53.
annual amount of rain, viii, 54.
cold, cultivation in, iii, 288.
Clingmanite, viii, 383, x, 117.
Clöz, separation of oxyds of cobalt and manganese, i, 106.
on sulphoxyarsenic acid, v, 117.
Clouds, method of measuring the height of, *Whewell*, iii, 140.
mean sky covered by, viii, 50.
Coal of Alabama, i, 371.
of Richmond, Va., *C. Lyell*, iv, 113.
of Cape Breton, i, 278.
in Chili, vi, 146.
in New Mexico, vi, 383, 385, 389.
in Kerguelen's land, vii, 318.
of Silesia, origin of, *Göppert*, iii, 119.
in the Straits of Magellan, vii, 304.
of the Rocky Mountains, iii, 197, 273, vi, 389.
on the Nile, vii, 436.
on Vancouver's Island, vii, 436.
in the East Indies, iv, 109, v, 268.
anthracite, vegetable structure of, i, 124, 407.
fluorine in, iii, 422.
cannel, fluor spar in, *H. D. Rogers*, ii, 124.
comparative value of, for illumination, *A. Fyfe*, vii, 77, 157.
Coal gas, on the purification of, x, 133.
plants of Tuscaloosa, Ala., *C. Lyell* and *C. J. F. Bunbury*, ii, 228.
of Richmond, Virginia, *C. J. F. Bunbury*, iv, 114.
of Frostburg, Md., ferns of, ii, 427.
formation of Britain, extent and flora of, viii, 131.
of Ohio, Fusulina in, *Verneuil*, ii, 293.
strata of Pennsylvania, footprints in, *C. Lyell*, ii, 25.
fires aided by chalk, iii, 451.
pits, acetate of lime formed in, iv, 275.
Statistics of, by *R. C. Taylor*, noticed, vi, 150.
Coast survey, noticed, iii, 300, v, 299, 307, vii, 311, x, 143, 151.
lines, characters of, iii, 382, 385.
Cobalt and manganese, separation of oxyds of, i, 106, ii, 260, iv, 271.
extraction of, at Birmingham, viii, 112.
on the preparation of pure oxyd of, x, 258.
and nickel, separation of, v, 411.
protosulphuret of, v, 268.
oxyd of, with brown hematite, Chester Ridge, Pa., iv, 281.
Cochineal, v, 414.
Coffee and caffeine, *M. Payen*, iii, 106, 423.
Chicory, viii, 441.
Coffin, J. H., winds of the western hemisphere, vi, 398.
on the variation of the moon, i, 389.
Cohesion of liquids, and its effect on the point of ebullition, ii, 256.
Cohesive attraction, on certain laws of, *J. D. Dana*, iv, 364, v, 100.
Coins, Roman, discovery of, in France, ii, 141.
ancient, analyzed, i, 265.
containing bromid and chlorid of silver, i, 430.
Coke, new property of, vi, 424.
diamonds converted into, iv, 409.
Cold, effects of, on affinity, i, 256.
of Utica, vi, 296.
Coleoptera longicornia, materials toward a history of, v, 133.
Collections of minerals, coins, &c., for sale in Baltimore, vi, 447.
Color, influence of, on dew, *J. Brocklesby*, vi, 178.
Color brown, existence of, *E. Brucke*, vii, 129.
Color, apparent motion of red and blue in worsted, vii, 132.
Colors, classification of, by *J. D. Forbes*, ix, 300.
of stars, Sestini's memoir on, noticed, iii, 281.
Coloring of geological sections, v, 111.
matters, report on, *E. Schenck*, vii, 275.
Colored glass, for glazing palm house at Kew, iv, 431.
sectors, on the occasional distinct vision of revolving, *Stevelly*, x, 401.
Colthurst, scale of heights by, ix, 456.
Columba, new species of, iv, 421, vii, 115.
Columbate of lime, a new mineral, *J. E. Teschemacher*, iii, 32.
Columbite, new metals in, iii, 357.
on the acid in the North American, *H. Rose*, iv, 468.
large crystal at the Wesleyan University, Middletown, Ct., iv, 449.
and urano-tantalite, v, 422.
Columbus, monument to, iii, 142.
Columns of the Giant's causeway, v, 294.
Comet, Biela's, i, 293, 446, ii, 435, 437, 439.
Brorsen's, ii, 137, 138, 439, v, 134.
DeVico's, i, 448, ii, 137, 439, iii, 132.
Goujon's, viii, 429.
Halley's, iii, 126, v, 370.
Hind's, ii, 439, iii, 132, 282.
Miss Mitchell's, iv, 426, v, 83, 135.
Petersen's, 1848, vi, 437, vii, 122.
Comets, Bond's, i, 447, ii, 137, 138, 280, iii, 443, iv, 287, vii, 123, 449.
of 1844–1845, i, 449.
of 1846, i, 448, ii, 137, 138, 280, 439, iii, 282.
of 1847, iv, 287, 426, v, 83, 134, 135.
of 1848, vi, 437, vii, 122, 123.
of 1849, vii, 449, viii, 428, 429, ix, 442.
of May, 1850, x, 136.
of 1556, expected return of, iii, 443, ix, 442.
Peirce's Catalogue of, noticed, iii, 127.
number of, on record, iii, 128.
Comet medal, ii, 293.
given to Miss Mitchell, vii, 123.
Cometary physics, *Smyth*, x, 399.
Commercial Review, *de Bow's*, vi, 298.
Compound radicals, objections to theory of, iv, 93.
Compression and distortion of fossils, iv, 111.
Concentric aggregations, cause of, iv, 379.
Conchology of Connecticut, *J. H. Linsley*, vi, 233.
contributions to, *C. B. Adams*, ix, 133, 458.
works on, by *Lovell Reeve*, noticed, x, 149.
see farther, *Zoology*.
Concord Natural History Society, ii, 144.
Concretion of a horse's stomach, analysis of, iv, 274.

Concretionary structure, cause of, iv, 379.
Condor of Cordillera, iv, 447.
Conducting powers of metals, viii, 185.
Conductility of heat by crystallized bodies, v, 414.
of galvanism by the earth, *Matteucci*, x, 406.
Confervæ in geysirs of Iceland, iii, 288.
Congelation of mercury by virtue of the spheroidal state, iv, 101.
Congress of German Naturalists, i, 308.
of Science, Italian, v, 297.
Conine, composition and metamorphoses of, x, 259
Connecticut valley, trap tuff of, *E. Hitchcock*, iv, 199.
fossil tree in, iv, 116.
Connell, on sulphato-chlorid of copper, a new mineral, iv, 415.
Conrad, T. A., observations on the Eocene formation of the U. S., i, 209, 395.
catalogue of recent shells also found fossil, i, 404.
freshwater shells of Rockbridge Co., Va., i, 405.
tertiary of Warren Co., Miss., ii, 124.
of the Walnut Hills, Miss., ii, 210.
shells of Tampa Bay, ii, 393.
fossils from the Eocene of Tampa Bay, ii, 399.
shells from the tertiary of Oregon, v, 432.
Constants, *Gauss's* magnetic, iii, 140.
Continents, on the origin of, *J. D. Dana*, ii, 352, iii, 94, iv, 92.
trends of coasts and features of, iii, 382.
Contracting area in the Pacific, iii 396.
Contraction, a geological cause, iii, 94, 176, 395.
of the earth during cooling, geological effects of. *J. D. Dana* iv, 88.
Cooke, T. L., analysis of bronze antiquities found at Dowris, x, 111.
Copernicus, opinion of, on light of planets, vi, 140.
Copper, new mode of estimating, ii, 259, (*Pelouze*). iii, 110 (*Jacquelain.*)
of Lake Superior, iv, 115, vii, 286, x, 65.
native, of Chili, containing silver, x, 255.
incandescence of, in the vapor of alcohol, *Böttger*, ii, 260.
preparation of oxyd of, *Wittstein*, ii, 262.
vanadate of, native, ii, 414.
and zinc carbonate of. vi. 426.
phosphates of, from Nichne Tagilsk, viii, 127.
black oxyd, of Lake Superior, viii, 273 x, 72.
sulphato-chlorid of, a new mineral, iv, 415
Copper amalgam. ix, 282.
blende, analysis of, viii. 127.
mines, Australian, vi. 134.
mines, in California. vi. 388.
in Chihuahua, vi, 385.
ore, alledged insolubility of, in hydrochloric acid, vi, 395.
ores, reduced by electricity, iv, 276.
smelting of, iv, 292, v, 260.
in Japan, *S. W. Williams*, viii, 336.
extraction of gold from, ix, 297.
Copying engravings, new mode of, *N. de St. Victor*, vi, 258.
Coracite, *J. L. LeConte*, iii, 117, 173.
J. D. Whitney, vii, 434.
Corals, fossil, genera of, i, 178.
chemical composition of calcareous, *B. Silliman, Jr.*, i, 189.
silicified, East Florida, ii. 43.
fossil, in New York, iii, 69, 71.
Cystiphyllum, *D. D. Owen*, iii, 71.
tertiary, on some new species, in reply to Mr. Dana, *W. Lonsdale*, iv. 357.
remarks in reply to Mr. Lonsdale, *J. D. Dana*, iv, 359.
near Prince Edward's Island, vii, 317.
of Antarctic regions, vii, 327, viii, 15.
Cordierite, analysis of, v, 381.
Corenwinder, B., on preparing nitrogen, ix, 114.
Corundellite, viii, 380, x, 117.
Corvus lugubris, iii, 436.
Corycæus, eyes of, *J. D. Dana*, ix, 133.
Cosmogony of the Polynesians, i, 305.
Cost of voltaic arrangements, ix, 111.
Coste, on the formation of cells, i, 281, 436.
Cotton, detection of, in linen, iv, 106.
American, in India, ii, 141, vii, 135.
Craig's English Dictionary, noticed, viii, 309.
Crania of the human race, comparative capacity of. *S. G. Morton*, ix, 40, 246.
of Troglodytes gorilla, ix, 34.
Craw, W. J., analysis of Oak Orchard spring water, ix, 449.
analyses of emerylite, viii, 379, x, 117.
of phlogopite, x, 383.
Crawe, I. B., cabinet of minerals for sale, vii, 138.
obituary of, iv, 300.
Creation, Vestiges of, reviewed, i, 250.
Credner, H., analyses of Allanite, x, 251.
Cremastochilus in ant nests, *S. S. Haldeman*, vi, 148.
Cretaceous formation in Texas, *F. Römer*, ii, 360, vi, 23.
formations of Russia, iii, 156.
of the Rocky Mountains, iii, 197.
in New Mexico and Western Missouri, vi, 377, 390.
rocks of South Carolina, viii, 67.
prevalence of, *von Buch*, x, 268.
Crinoidea, notice of *Austins'* work on, ii, 406.
fossil of Tennessee, viii, 419
Crooke, J. J, analysis of Corundellite, viii, 380.
analysis of Euphyllite, viii, 382.
Crossley, R, analysis of vermiculite, ix, 422.
analysis of algerite, x, 77.
Crozet's group of islands, vii, 317
Crustacea, new classification of, *J. D. Dana*, i, 225.
of the Exploring Expedition, *J. D. Dana*, viii, 276, 424, ix, 129, 133, 295, x, 123.
homologies in, *J. D. Dana*, viii, 284.
genera of Gammaracea, viii, 135, 428.
of the voyage of H. M. S. Samarang, during the years 1843–6, x, 148.
observations on some, *L. R. Gibbes*, x, 122.
Cryptolite, *F. Wöhler*, ii, 268.
Crystal of diamond, from North Carolina, ii, 253.

Crystals, form and polarity of molecules of, *J. D. Dana*, iv, 367.
origin of secondary planes, *J. D. Dana*, iv, 372.
origin of cleavage of, *J. D. Dana*, iv, 378.
effects of tension in, on polarization, *J. D. Dana*, iv, 370.
magnetic relations of optic axes of, *Plücker*, viii, 430.
Crystalline bodies, deportment of, between the poles of a magnet, ix, 414.
slags from iron furnaces, v, 127.
Crystallization, influence of magnetism on, ii, 116.
artificial, of gems, *Ebelmen*, vii, 427.
Crystallized bodies, structure and teratology of, v, 419.
Crystallogenic attraction identical with cohesive attraction, *J. D. Dana*, iv, 364.
Crystallography, memorandum by *J. H. Alexander*, v, 136.
Cuchullin hills in Skye, i, 434.
Cultivation of wheat in Russia, iii, 288.
Cuminate of ammonia, v, 413.
Cupellation with the blowpipe, *W. W. Mather*, iii, 409.
Cuproplumbite, a new mineral, ii, 414.
Current around Cape Horn, *J. C. Ross*, vii, 316.
Currents atmospheric, remark on, *W. C. Redfield*, iii, 283.
transporting power of, v, 115.
and winds of the ocean, *M. T. Maury*, vi, 399.
Curtiss, M. A., contributions to American Mycology, vi, 349, 444, viii, 401, ix, 171, x, 185.
new and rare plants, chiefly of the Carolinas, vii, 406.
Curve, described by a moveable pulley, *A. Secchi*, viii, 252.
Cutch, earthquake and subsidence in the district of, ii, 270.
Cuttle fish, leap over a ship, *J. C. Ross*, vii, 316.
Cyanogen, oxydation by means of, i, 259.
compounds, analysis of, *R. Smith*, ii, 112.
Cyathophyllidæ, genera of, i, 178.
remark on, *J. D. Dana*, iii, 14.
Cycas circinalis, structure of the trunk of, ii, 280.
Cyclopacea, notice of some genera of, i, 225.
Cymundis Wilsonii, *J. Cassin*, iv, 285.
Cypress timber of Mississippi and Louisiana, *M. W. Dickeson*, and *A. Brown*, v, 15.
Cytherea, fossil species of, v, 432.

D.

Dactylis cæspitosa, viii, 167.
Daguerreotype plate, different properties of rays on, *A. Claudet*, iv, 409.
for copying microscopic objects, iv, 411.
see farther, *Photography*.
Dalyell, J. G., work on rare and remarkable animals, noticed, vi, 452.
Damour, A., description and analyses of Brongniardite, x, 247.
jade allied to tremolite, ii, 267.
on dufrenoysite, v, 268.
on columbite, v, 422.
Damourite in the United States, *E. Teschemacher*, ii, 119.
Dana, J. D., on genera of fossil corals, i, 178.
note on fossil corals appended to Conrads eocene fossils, i, 220.
notice of some genera of Cyclopacea, i, 225.
note on microscopic structure of corals, i, 284.
general views on the classification of animals, i, 286.
on zoophytes, ii, 64, 187, iii, 1, 160, 337.
on the occurrence of fluor spar, apatite, and chondrodite in limestone, ii, 88.
on the volcanoes of the moon, ii, 335.
on the early condition of the earth's surface, ii, 317.
origin of the feldspar centre of volcanic mountains, ii, 348.
origin of igneous rocks and their peculiarities, ii, 348.
crystallization of syenites and granites, ii, 351.
origin of continents, ii, 352, iii, 94.
number of islands that have disappeared in the Pacific, iii, 94.
origin of the Appalachians and Rocky Mountains, iii, 98, 99.
origin of the trap dykes of New England, iii, 99.
geological results of the earth's contraction, iii, 176.
cause of folding of strata, iii, 183.
position of volcanoes of the earth, iii, 186.
origin of the grand outline features of the earth, iii, 381.
general reviews of the geological effects of the earth's coolings from a state of igneous fusion, iv, 83.
fossil shells from Australia, iv, 151.
observations on some tertiary corals described by Mr. Lonsdale, iv, 359.
on certain laws of cohesive attraction, iv, 364.
forms and polarity of molecules, iv, 365.
origin of secondary planes, iv, 372.
origin of cleavage, iv 378.
on a law of cohesive attraction exemplified in a crystal of snow, v, 100.
description of a fossil fish, from Australia, and a belemnite from Tierra del Fuego, v, 433.
on the fossils of Australia, v, 434.
observations on dolomisation, vi, 269.
review of Chambers's Ancient Sea Margins, with observations on the study of terraces, vii, 1.
notes on Upper California. vii, 247.
on modes of occurrence of gold in California, vii, 262.
on some points in the physical geography of Oregon and Upper California, vii, 376.
fiord cones of the globe and their bearing on areas of subsidence, vii, 379, 380.
on terraces, viii, 86.
genera of Gammaracea, viii, 135, 428, ix, 295.
crustacea of the Exploring Expedition, viii, 276, 424, ix, 129, 295, x, 123.

Dana, J. D, denudation in the Pacific Islands, ix, 48.
eyes of Sapphirina, ix, 133.
table of atomic weights, ix, 217.
on isomorphism and atomic volume in some minerals, ix, 220, 407.
on danburite, ix, 286.
degradation of rocks of N. S. Wales, and formation of valleys, ix, 239.
on the genus Astræa, ix, 295.
on the Ozarkite of Shepard, ix, 430.
historical account of the eruptions of Hawaii, ix, 347, x, 235.
on some minerals investigated by Hermann, ix, 408.
on the mica family, x, 114.
on the genus Nocticula, x, 122.
crystalline form of spodumene and its isomorphism with pyroxene, x, 119.
Isomorphism of staurotide with andalusite and topaz, x, 121.
analogy between alternation of generations in Radiata and reproduction in plants, x, 341.
on supposed staurotide, x, 121, 414.
on Oithona plumifera of Baird, x, 123.
Manual of Mineralogy, by, noticed, vi, 302.
geological report of the U. S. Exploring Expedition, by, noticed, viii, 451.
report on zoophytes of U. S. Exploring Expedition, by, noticed, i, 149, 178, viii, 455, ix, 294.
third edition of System of Mineralogy, by, noticed, x, 138.
Dana, S. L., on force of gun-cotton, iii, 103.
on Lead Diseases, noticed, vi, 299.
Danburite, ix, 286.
Daniell, J. F., obituary of, ii, 145.
Darbya, a new genus of plants, i, 388.
Darlington, W., agricultural botany by, noticed, iv, 451.
memoirs of Bartram and Marshall, by, noticed, viii, 456, ix, 85.
Darrack, J. D., analysis of mica from Unionville, Pa., x, 115.
Darwin, C., on the Falkland islands, ii, 124.
cause of absence of marine formations from certain regions, iii, 120.
dust falling on vessels in the Atlantic, iii, 141.
geological observations on S. America, by, noticed, iii, 146.
Datura sanguinea, effects of, iv, 446.
Daubeny, notice of phosphorite rock of Spain, i, 277.
on active and extinct volcanoes, noticed, v, 303, 446.
Daubrée, A., artificial production of minerals, ix, 120.
Davis, C. H., memoir by, on tidal action, noticed, viii, 305.
on the prime meridian, viii, 394.
Davis, D., Manual of Magnetism, by, noticed, v, 150, viii 308.
Davis, E. H., footprints and Indian sculpture, iii, 286.
publications by, on Indian mounds under the Smithsonian Institution, iv, 438.
Dawson, J. W., reproduction of forests, iv, 161.
Day, Jeremiah, on the relation of the laws of mechanics to perpetual motion, x, 174.
Dead Sea, *Molyneux*, on, vi, 146.
level of, vi, 148, viii, 331.
expedition to, under Lieut. Lynch, vi, 441, viii, 317.
analyses of waters of, *Marchand*, viii, 444.
Deakin, R., Florigraphica Brittanica, x, 304.
Deane, J., on fossil footprints, iii, 74, iv, 448,
v, 40.
Death and disappearance of some trees and shrubs, i, 450
Deaths, see *Obituary*.
De Candolle's Prodromus, noticed, v, 449, vii, 309.
Declivity of talus slopes, vi, 133.
Decomposition and partial solution of minerals, rocks, &c., by water, v, 401.
Decomposition of albumen, &c., new products from, vii, 107.
De la Rive, A., on the cause of the aurora borealis, ix, 450.
De la Rue, W., on the Navicula Spencerii, ix, 23.
on cochineal, v, 414.
Delesse, effects of fusion on density of rocks. vi, 133, 423.
on the mineralogical and chemical composition of some rocks, x, 252.
Delessert, Icones Selectæ Plantarum of, noticed, ii, 445.
Delta of the Mississippi, iii, 34, 118.
Density, maximum, of pure water, iii, 427.
of rocks, effects of fusion on, vii, 133, 423.
Denudation in the Pacific Islands, ix, 48.
Depot of charts and instruments at Washington, i, 294.
Desains, P., on rotation of the plane of polarization by magnetism, ix, 344.
Deschamps, copper in the bodies of animals, vi, 422.
Descloizeaux, on the temperature of the Geysirs of Iceland, v, 269.
Desmidieæ, American, new species of, i, 126.
British, *J. Ralfs*, on, noticed, vi, 302.
Desor, on erratic blocks and elevations in Northern Europe, iii, 313.
memoir of, on biogen, vii, 395.
Despretz, C., electricity not developed by muscular contraction, viii, 406.
volatilization of carbon, viii, 413.
Dessaignes, transformations of hippuric acid, iii. 257.
on aspartic acid formed from bimalate of ammonia, x, 262.
Detonating compounds formed with nitric acid on sugar, dextrine, &c., *A. Sobrero*, iv, 274.
Detritus of the Mississippi, iii, 34, 118.
De Vico, comet of, i, 448, ii, 137, 439, iii, 132.
Deville, crystallization of sulphur, vii, 282.
Dew, influence of color on, *J. Brocklesby*, vi, 178.
observations on, *Melloni*, vi, 418.
variations in the amount of, viii, 220, 352.

Dewey, C., facts relating to the Great Lakes, ii, 85.
Caricography, ii, 245, iii, 171, 354, iv, 343, v, 172, vi, 244, viii, 348, ix, 29.
fluid for a galvanic battery, iii, 427, v, 126.
relative level of Lake Ontario, iii, 444.
ice a conductor of galvanism, vi, 253.
Grove's battery with water used with the zinc cup, vi, 253.
oxyd of zinc in the porous cup, vi, 254.
on neo-macropia, viii, 443.
on anchor-ice, x, 277.
Dexter, W. P., Rose's atomic weights by, noticed, x, 298.
Diallage, x, 253.
Diamagnetic action, generality of, *Faraday*, ii, 233.
condition of flame and gases, v, 254.
bodies, supposed polarity of, *M. Faraday*, x, 188.
Diamagnetism, experiments on, *H. C. Œrsted*, vii, 233.
Plücker, vii, 270.
Diamond, phosphorescence of, i, 267, vii, 433.
converted into coke, iv, 409.
oxydation of, in the liquid way, *Rogers*, vi, 110.
form taken under the voltaic arc, *J. P. Gassiot*, x, 404.
in California, viii, 294.
large, in India, ix, 434.
compact, of Brazil, vii, 433.
in N. Carolina, ii, 119.
mode of occurrence of, in the Ural, *Murchison*, ii, 119.
Diana, the 10th asteroid, denial of discovery of, vii, 290.
Diatomaceæ of the Antarctic, iv, 424, viii, 178, 179.
Dickeson, M. W., on cypress timber, v. 15.
Dickson, T., inorganic constituents of ale and porter, vii, 102.
Dictionary of the English language, *Goodrich's* edition of *Webster's*, v, 147.
of Modern Gardening, *G. W. Johnson*, iv, 148.
Craig's, English, noticed, viii, 309.
Differential coefficient of a function of any number of variables on the variation of, *A. D. Stanley*, iii, 415.
Diffraction, cause of projection of a star on the dark limb of the moon just before its occultation, ii, 433.
of waves of sound, iii, 140.
Digenite, ii, 414.
Digestion of amylaceous and saccharine substances, *Mialhe*, ii, 264.
Dikes of trap, in Connecticut, *J. G. Percival*, iii, 390.
in New Hampshire, *O. P. Hubbard*, ix, 158.
Dilatation of ice, iii, 450.
Dillnite, x, 247.
Dimorphism of zinc, palladium, iridium, tin, vi, 255.
Dinornis of New Zealand, *Owen*, i, 129, vii, 151.
bones of, *G. A. Mantell*, v, 431, vii, 28, ix, 437.
Dip, magnetic, at Makerstoun, iii, 115.
variations in, *Quetelet*, vi, 446.
Dip, Magnetic, see farther, *Magnetic*.
Diphanite, a new mineral, iv, 277.
Discoidal stones of the Indians, *S. G. Morton*, ii, 13.
ibid, *E. G. Squier*, ii, 216, 287.
Dispersion of light, *E. B. Hunt*, vii, 364.
Disterrite, a new mineral, viii, 123.
Divisibility of magnitude, *A. MacWhorter*, vi, 329.
Dodo, on the history of *H. E. Strickland*, iv, 422, vii, 52.
Döbereiner, J. W., chemico-dynamical action of platinum, i, 110.
obituary of, viii, 450.
Dogs, hybrids among, iii, 45.
Dolomite, analysis of, x, 248.
altered, of the isle of Bute, viii, 420.
Dolomisation, observations on, *A. von Morlot*, vi, 268.
ibid. *J. D. Dana*, vi, 269.
Donny, F., on the cohesion of liquids and its effect upon the point of ebullition, ii, 256.
D'Orbigny, Alcide, on the palæontology of South America, i, 279.
works of, noticed, i, 309, ii, 299, iv, 452, x 303.
on the Orbitolina, iv, 282.
on the Foraminifera, noticed, iv, 452.
Dove, error of his alleged direction of rotation in storms, ii, 176, 184.
Dovert, on silica, v. 124.
Downing, A. J., the Horticulturist, by, noticed, ii, 298.
Drake, D., treatise on American diseases, noticed, ix, 456.
Draper, J. W., cause of the circulation of the blood, ii, 276.
on the production of light by heat, iv, 388, v. 1.
on the production of light by chemical action, v, 159.
Chemistry of, noticed ii, 445.
Drejer's work on Carices, noticed, ii, 302.
Drift, wave of translation, as connected with, *W. Whewell*, vi, 115.
remarks on, vii, 2.
and alluvium of Ohio, notes on, by, *C. Whittlesey*, v, 205.
furrows, scratches, &c., near Lake Superior *F. Shepherd*, iv, 282.
Dubreuil, A., Cours Elementaire theorique et pratique d'Arboriculture, x, 303.
Ducatel, J. T., obituary of, viii, 146.
Duflos, acetate of iron, a remedy for arsenical preparations, i, 108.
Dufrenoysite a new mineral, v, 268.
Dulcose, a homologue of grape sugar, x, 112.
Dumas on the milk of the Carnivora, i, 263.
on blood, iii, 108.
on phosphate of lime in organic beings, iii, 261.
on nitrification, iii, 261.
on the action of anhydrous phosphoric acid on the amids and ammoniacal salts, v, 263.
liquid protoxyd of nitrogen, viii, 113.
Dumoute and *Mendrel* on xyloidine, &c., v, 265.
Duncan, L. C., gift to Yale College, v. 294.
Dupasquier, purification of arseniferous sulphuric acid, i, 111.

Dust, falling of, on vessels in the Atlantic, iii, 141.
of Hecla, iii. 272.
at Genoa, infusorial, iv, 423.
in Russia, infusorial, x, 287.
Dutch liquid, new compound from v. 413.
Dutrochet, on the influence of electricity on the circulation of the Chara, ii. 133.
Dutton, T. R., basalt of Lake Superior, iv, 118.
Dynactinometer. *Claudet* on. x. 401.
Dyslytite, a new meteoric mineral, ii, 380.

E.

Ear of the Limnæus stagnalis, iv, 131.
Earth, relative quantities of land and water, ii, 289.
early condition of, as inferred from the surface of the moon, ii, 347.
on the figure of, *Bessel*, iv, 317.
age of, from geological evidence, *C. Lyell*, iii, 38.
origin of the outline features of, *J. D. Dana*, iii, 381.
daily intensity of the sun at the exterior surface of, x. 49,
contraction during cooling, geological effects of, *J. D. Dana*, iv, 88.
crust, thickness of, *W. Hopkins*, iv, 88.
magnetism, *W. A. Norton*, viii, 35, x, 330.
Earthquake and subsidence in Cutch, ii, 270.
with a vorticose movement, ii, 270.
and eruptions at Ternate, v, 422.
East Indies, observations on, vi, 157.
Island, vii, 317.
Ebelmen, compounds of boracic acid with ether, ii, 412.
artificial production of minerals and precious stones, v, 125, vii, 427.
on artificial hyalite and hydrophane, v, 412.
researches on compounds of titanium, vii, 106.
on the decomposition of rocks, viii, 421.
Ebullition, affected by cohesion, *T. Donny*, ii, 256.
Echinoderm, fossil, from the eocene, *S. G. Morton*, ii, 273.
fossil, from St. Louis, *Norwood* and *Owen*, ii, 225.
Eclipse, solar, April, 25, 1846, i, 289, ii, 138.
annular, 1847, v, 283.
Ecliptic star charts, vii, 290.
Economic Geology, museum of, in England, vi, 446.
Educational statistics at Oxford, England, iii, 137.
Edwards, M., on the natural classification of animals, v, 428.
Researches on the Coast of Sicily, noticed, x, 303.
Egg, composition of yolk of, i, 264.
of the Moa from New Zealand, v, 134.
Ehlite, analysis of, vii, 113.
Ehrenberg, infusoria in volcanic rocks, i, 123.
microscopic examination of the ash of coal, i, 124.
sirocco dust at Genoa, iv, 423.
on infusoria, from Oregon, ix, 140.
on a cloud of dust in Russia, x, 287.
Elæolite in Arkansas, ii, 252.
Elastic fluids, law of their flow through orifices, *E. W. Blake*, v, 78.
media, propagation of pulses in, *E. W. Blake*, v, 372.
Elasticity of metals and latent heat, coëfficient between, *C. C. Person*, vii, 128.
Eld, Henry, obituary of, x, 137.
Electric battery, a novel mode of discharging, *J. H. Lane*, vii, 418.
calamine, x, 249,
conduction of metals, law of, i, 230.
C. G. Page, ii, 406.
resistance presented by fluids, v, 36.
of certain bodies, *E. Becquerel*, ii, 255.
conductibility of the earth, x, 406.
currents produced by vibration, i, 256.
in muscles, v, 391.
relation of, to nervous power, iii, 112.
developed by muscular contraction, viii, 404, 405, ix, 304.
excitement of paper, i, 427, iii, 451.
spark, singular character of secondary, *C. G. Page*, x, 349.
and magnetical currents, influence of, on the sap of the Chara, *Dutrochet*, ii, 133.
light, *Staite's*, vii, 450.
telegraph important for conveying meteorological intelligence, *W. C. Redfield*, ii, 334.
lines of, in the U. States, iii, 296.
fact *v.* fancy, iii, 449.
history of, iv, 253, vi, 439.
Electrical attraction, nature and laws of, *W. S. Harris*, iv, 413.
lady, death of, i, 308.
phenomena of certain houses, *E. Loomis*, x, 321.
theories, *R. Hare*, vi, 45.
Electricity, galvanic, probable conduction of, through moist air, ii, 204.
liberation of, by bursting of a bladder, ii, 255.
free, *R. Hare*, iii, 334.
atmospheric, induction of, on the telegraph wires. *J. Henry*, iii, 25.
developed by bands of leather, *J. M. Batchelder*, iii, 250.
work on Medical Application of, by *W. F. Channing*, noticed, viii, 308.
experimental researches in, by *Faraday*, x, 188.
of a buried plate of zinc, ix, 1.
Electro-culture, i, 449.
Electro-chronograph, vii, 206, viii, 231, ix, 151.
Electro-magnetic induction, law of, *C. G. Page*, ii, 202.
rotation of ray of light, vi, 153.
balance, vi, 258.
Electro-magnetism as a moving power, x, 282, 343, and Appendix (following this Index).
Electrolysis, quantity of, varying with the sectional area of the electrolyte, iv, 411.
Electrophonic telegraph, ii, 118.
Electro-physiology. *Matteucci*, iii, 111, v, 390.
Elements of Physiology, by *W. B. Carpenter*, noticed, ii, 147.
Elephant, fossil, in Vermont, ix, 256.
Elevations of continents, views of *C. Prévost* on, ii, 355, iii, 178.

Elevation of continents, how produced, *J. D. Dana*, ii, 352, iii, 94, 176.
in Scandinavia, bearing of phenomena of erratic blocks on, *Desor*, iii, 313.
Elliot, S., gold on farm of, ix, 126.
Elliptical polarization, iii, 262, 264.
Elsner, analysis of a Chinese metal mirror, i, 118.
Embryology, a basis of classification, *M. Edwards*, v, 428.
ibid, *Barry*, vi, 433.
ibid, *Agassiz*, vi, 432.
Emerald nickel, *B. Silliman, Jr.*, iii, 407, vi, 248.
Emerson, G. B., Report by, on trees and shrubs of Massachusetts, noticed, iii, 310.
Emery formation of Asia Minor, *J. L. Smith*, vii, 283, x, 354.
Emerylite, a new mineral, *J. L. Smith*, vii, 285.
analyses of, viii, 378, x, 116.
Emory, W. H., tour to California, vi, 386.
Emulsine, *B. W. Bull*, viii, 74, 272.
Enceladite, *T. S. Hunt*, ii, 30.
Encyclopedia Americana, vol. xiv, noticed, iii, 145.
Endlicher and *Martius* Flora Brasiliensis, noticed, iii, 147.
Endlicher, Generum Plantarum ix, 148.
Synopsis Coniferarum, ix, 148.
Endosmose, new researches in, by *Liebig*, v, 415.
Engé-ena, crania of, ix, 34.
zoological position of, ix, 41.
Engelmann G., North American species of Isoetes and Marsileæ, iii, 52, 451.
on the St. Louis limestone, iii, 119.
Melonites multipora iii, 124, 451.
on rain and snow at St. Louis, iii, 438.
on U. S. ferns by Kunze, vi, 80.
Engineer Bureaus, ix, 147.
England, iron manufacture in, iii, 291.
plate glass making in, iii, 293.
English prefixes from the Greek, *J. W. Gibbs*, vi, 206.
Engravings, mode of copying, vi, 258, viii, 293.
Entomology in the United States, history of, i, 17.
Entomostraca, new genera and species of, *J. D. Dana*, i, 225, viii, 276.
Natural History of British, noticed, x, 145.
Entophytes, *J. Leidy* on, ix, 441.
Eocene formation of the United States, with descriptions of shells, i, 209, 395.
of Georgia and Alabama, *C. Lyell*, i, 313.
organic remains in, i, 219.
Epidote, composition of, *Gerhardt*, viii, 123.
Equivalents, chemical, *Gerhardt* and *Laurent*, ix, 364.
see farther, *Atomic weights*.
Erdmann, on the atomic weight of zinc, i, 104.
Erickson, W. F., obituary of, vii, 450.
Erman, Gauss's magnetic constants, iii, 140.
Erni, H., analysis of Danburite, ix, 286.
Lancasterite, ix, 216.
Oak Orchard spring water, ix, 449.
Erni, H., analysis of euphyllite, x, 118.
Erosion measured by trap dikes in New Hampshire, *O. P. Hubbard*, ix, 158.
Erratic blocks and elevations in Northern Europe, *Desor*, iii, 313.
phenomena about Lake Superior, x, 83.
Errors of mathematical tables, v, 398.
Eryx maculatus, a new reptile, ix, 137.
Esculent fungi in England, v, 290.
Espy, J. P., first Report on Meteorology, noticed, i, 143.
Ether, luminiferous, *Faraday* on, ii, 118
Ether, inhalation of, in surgery, iii, 444, iv, 138, 246.
sulphurous, how formed, i, 261.
compounds of boracic acid with, ii, 412.
vitreous boracic, ii, 412.
salicylic, ix, 279.
Ethers, phosphoric, researches on, ix, 113.
Ethnography of the American Aborigines, *S. G. Morton*, ii, 1.
of the U. S. Exploring Expedition, reviewed, i, 317.
Ethnological Society, Transactions of, vii, 456.
distribution of round and elongated crania, *Retzius*, iii, 138.
Ethyle, decomposition of cyanid of, v, 119.
Etna, *von Waltershausen's* work on, noticed, ii, 157.
Ettling, gas pipette, i, 112.
Eudiometry, process recommended by *Graham* i, 262.
Eudnophite, x, 246.
Euphyllite, a new mica, viii, 381, x, 116.
Euplectes nigroventris, vii, 116.
Eureka, a scientific journal, noticed, iii, 146.
Europe, boulders and elevations in Northern, *Desor*, iii, 313.
water power of, iv, 145.
Eukolite, a new mineral, viii, 126.
Euphotide, x, 252.
Euxenite of Tvedenstrand, viii, 126.
Exhalation of carbonate of ammonia from the lungs, iv, 274.
Expedition to Siberia, i, 146, 307.
Exploring, of the United States, under Capt. Wilkes, works on, i, 149, 178, 317, viii, 454, ix, 294, 307.
ibid, crustacea of, viii, 276, 424, ix, 129, 133, 295, x, 123.
to the Dead Sea, under Lieut. Lynch, vi, 441, viii, 317.
ibid, Lieut. Molyneux, vi, 146.
French, under Baudin, viii, 192.
antarctic, under *Ross*, vii, 313, viii, 14.
Explorations of the Gulf Stream, v, 316.
in search of Sir John Franklin, vi, 149, 446, x, 136
Eye, adaptation of, to distances, i, 131.
on the gradual production of luminous impressions on, ix, 443.
new membrane in, *D Brewster*, x, 400.
Eyes of the barnacle, *J. Leidy*, vi, 136.
why one object seen with two, *J. Locke*, vii, 68.
ibid, *S. P. Lathrop*, vii, 343.

F.

Fahlunite pseudomorph of iolite, ii, 418.
Fairy rings of pastures, iii, 294.
Falkland Islands, *C. Darwin*, ii, 124.

Falkland Islands, hillocks of Bolax glebaria at, iii, 121.
Falling bodies, deviation of, from a perpendicular, iii, 138, 283, 451.
Faraday, M., identity of light, heat and electricity, i, 146.
on new magnetic actions, and on the magnetic condition of all matter, i, 421.
researches on the relation of light and magnetism, i, 425.
views on luminiferous ether, ii, 118.
magnetic and diamagnetic action, ii, 233.
views on atoms and ray vibrations, ii, 401.
congelation of mercury, by virtue of the spheroidal state, iv, 101.
researches on the diamagnetic conditions of flame and gases, v, 254.
on the rotation of a ray of light by electro-magnetism, vi, 153.
crystalline polarity of bismuth, &c., and magnetic form of force, vii, 425.
experimental researches on diamagnetism, x, 188.
Fatty substances formed from nitrogenous bodies, v, 266.
Features of the earth, origin of, *J. D. Dana*, iii, 381.
Feldspar, x, 253, 254.
decomposed by steam to obtain the alkalies, vi, 260.
in the orbicular diorite of Corsica, vii, 113.
Fendler, A., dried plants from Santa Fe and New Mexico, v, 133.
botanical collections in New Mexico, vii, 452.
Fergus, T. H., mica from hornblende, vi, 425.
Ferns, fossil, see *Fossil.*
of the United States, *Kunze*, vi, 80.
Ferridcyanid of potassium, preparation of, iv, 271.
Fertilization and nitrification of soils, *F. Kuhlmann*, iv, 107.
Fibrine converted into fatty substance, v, 266.
Fibrolite, identity of, with kyanite, viii, 398.
Field, M. F., on the decomposition of cuminate of ammonia by heat, v, 413.
on native copper from Chili, x, 255.
Finland, Meteorological Society in, iii, 440.
measure of a degree of meridian in, iii, 450.
Finmark, lines of ancient level in the sea in, i, 273.
Fins of fishes, characteristics from, i, 440.
Fiords of the globe, evidence of subsidence, vii, 379, 380.
Fire gilding, amalgamation of iron and steel to prepare for, *Bottger*, ii, 266.
Fischer de Waldheim, on Spondylosaurus and Thoracoceras, i, 440.
jubilee in honor of, v, 301.
Fischer and *Meyer's* Sertum Petropolitanum, noticed, iii, 146.
Fischer, N. W., analysis of the Braunau meteoric iron, v, 338, vii, 171.
Fischerite, a new mineral, ii, 415.
Fish, on the resuscitation of frozen, x, 132.
fossil, of Indiana, i, 367.
from Australia, *J. D. Dana*, v, 433.
Fish of existing lakes in Sweden, formerly salt water, iii, 316.
Fishes of North America, notice of *D. H. Storer's* Synopsis of, ii, 145.
on the statistics of, *J. Müller*, iii, 276.
water tubes of, *L. Agassiz*, vi, 431.
characteristics from fins of, i, 440.
Fisher, R. S., Book of the World by, noticed, viii, 156.
Fisher, W., analyses of minerals, ix, 83.
Fisheries, resources of Irish, iv, 437.
Fissidens, species of, i, 72.
Fitz, H., telescopes of, vi, 437.
Flame, constitution of, v, 163, 165.
and gases, diamagnetic condition of, v, 254.
Flames, prismatic, analysis of, v, 160.
Flood in the Indus, vii, 129.
in the Macquarie, Australia, vii, 130.
Flora of Guiana, v, 458.
of Maine, by *Young*, v, 453.
Rossica, v, 453.
see *Botany.*
Florida, geology and fossils of, *T. A. Conrad*, ii, 36, 399.
recent shells of, ii, 36, 393.
geology of, *J. H. Allen*, i, 38.
Keys, structure of, *T. A. Conrad*, ii, 40.
discovery of an infusorial stratum in, x, 282.
Fluids, elastic, expansion of, ix, 334.
Fluorine, *Louyet* on, iii, 260.
estimation of, *Wöhler*, i, 261.
in minerals, source of, *J. D. Dana*, ii, 88.
G. Wilson, ii, 114.
in fossil plants and animals, *G. Wilson*, ii, 114.
in anthracite, *G. C. Schaeffer*, iii, 422.
in Firth of Forth, &c., *Wilson*, ix, 118.
in milk and blood, *Wilson*, x, 413.
Fluor spar in limestone, source of, *J. D. Dana*, ii, 88.
solubility of, *G. Wilson*, ii, 114, x, 414.
in cannel coal, *H. D. Rogers*, ii, 124.
Fluo-silicanilide, formation of, iii, 258.
Folding of strata, iii, 97, 182.
Folger, W., memoir of, ix, 313.
Footmarks, fossil, observation on, iii, 79, 276.
E. Hitchcock, iv, 46, viii, 151.
J. Deane, iii, 74.
J. Deane's reclamation relative to a species of, iv, 448.
D. Marsh on, vi, 272.
in the coal measures of Pennsylvania, i, 268, ii, 25.
of birds, *C. B. Adams*, ii, 215.
near Liverpool, England, iii, 142.
of a quadruped, v, 40.
on reptilian, *I. Lea*, ix, 124.
recent, of alligators, iii, 125.
Footprints and Indian sculpture, *E. H. Davis*, iii, 286.
Foraminifera, *D'Orbigny's* work on, noticed, iv, 452.
distribution of, iv, 453.
of Charleston, S. Carolina, iv, 453.
fossil, soft parts of, preserved, v, 70.
Forbes, E., freshwater formation of Smyrna harbor, i, 278.
Forbes, J. D., adaptation of the eye to vision at different distances, i, 131.

Forbes, J. D., on the theory of probabilities applied to the physical connection of double stars, x, 398.
on the classification of colors, ix, 300.
Force, magnetic form of, *M. Faraday*, vii, 425.
Forchhammer, researches on sea-water, iii, 289.
on fluorine in sea-water, ix, 120.
Fordos, analysis of sulphur acids, viii, 109, 110.
Forests, reproduction of, in British N. America, *J. W. Dawson*, iv, 161.
of Western America, distribution of, vii, 387, 389.
Forest, fossil, Parkfield colliery, ii, 422.
Formic acid, new process for, *W. B.* and *R. E. Rogers*, ii, 18.
Formulary, Universal, *Griffith's*, noticed, ix, 457.
Formulas for silicates and borates, v, 405.
Fossil belemnite, from Tierra del Fuego, v, 434.
birds and mammals of New Zealand, i, 129, v, 431, vii, 28, 151, ix, 437.
bones from Texas and Tennessee, i, 244, x, 56.
palæotherial in the west, iii, 248.
in Vermont, of elephant and cetacea, ix, 256.
shark, i, 280, vii, 441.
fish, new species from Indiana, i, 367.
from Australia, *J. D. Dana*, v, 433.
flora of America, iii, 86.
coal plants, from near Richmond, Va., *C. J. F. Bunbury*, iv, 114.
of Alabama, ii, 228, iii, 37.
of Maryland, ii, 427.
of anthracite, *J. E. Teschemacher*, iv, 420.
of Ohio, *C. Whittlesey*, viii, 375.
flora of European Miocene analogous to recent of America, iv, 424.
nut in the eocene, ix, 127.
mammals, (British,) History of, ix, 149.
Mastodon angustidens, ix, 304.
shells, distortion of, iv, 111.
remains of Alabama, i, 395, vi, 355.
of Australia, iv, 151, v, 433.
of Florida, ii, 36, 399.
of Oregon, v, 432.
of green sand, i, 280.
of New York, in a review of N. Y. Geological Reports, iii, 57.
of South Carolina, viii, 67, 69, 71.
of the White Mountains, remarks on, i, 411, v, 116.
of palæozoic formations of Europe and America compared, vii, 219, 221.
of soft parts of foraminifera, by *Gideon A. Mantell*, v, 70.
rain drops, x, 135.
trees, Kerguelen's Island, vii, 318.
Van Diemens Land, viii, 18.
Bristol, Ct., iv, 116.
footprints, see *Footmarks*.
Foster, E., obituary of, vii, 451.
Foster's geological chart, ix, 151, 309.
ibid, Mather's recommendation, disavowed, ix, 444.
Fowlerite, ix, 410, x, 121.
Fownes, G., on the production of the alkali furfuroline, ii, 407.
obituary of, vii, 452.
Fox, R. W., on pseudomorphous crystals of quartz, i, 430.
France, climate of, ii, 432, x, 396.
Frankland, on decomposition of cyanid of ethyle, v, 119.
Franklin, J., expedition in search of, vi, 149, 446, x, 136.
Fraunhofer's dark lines, cause of, v, 171.
Freezing water under air-pump without sulphuric acid, *J. L. Smith*, i, 265.
of leaves of box, *J. Gorgas*, viii, 286.
Fremont, J. C., exploring expedition to the Rocky Mountains, &c., i, 149.
on the Rocky Mountains, their geology, height, hot springs, coal, &c., iii, 192, 273, 450.
Cascade Range, Oregon, and hot springs, iii, 200.
coal in the Rocky Mountains, iii, 273.
Report by, on California, noticed, vi, 280.
Fremy, on metallic acids, i, 104.
on the ferrate of potash, i, 106.
Fresenius, C. R., solubility of phosphate of magnesia and ammonia, i, 258.
proper balance of food in nutrition, viii, 435.
amount of ammonia in the atmosphere, ix, 115.
work by, on Chemical Analysis, noticed, iii, 149.
Freshwater shells of Virginia, i, 405.
formation of Smyrna harbor, i, 278.
Frog battery, v, 391.
Fuch's method of analyzing iron ores, observations on, *Rogers*, vi, 395.
Fuchsite, x, 115.
Fucoides graphica, iii, 169.
Fucus of the Falklands and Fuegia, viii, 170.
Fundamental principles of mathematics, *S. Alexander*, vii, 178, 329.
Fungus, phosphorescent, iv, 446.
Fungi, esculent, in England, v, 290.
Furfuroline, a new organic alkali, *G. Fownes*, ii, 407.
salts of, ii, 407.
Furfurol, ii, 407, x, 257.
Furnaces of Ystalyfera, use of gas from, vii, 303.
Furrows on rocks dependent on structure, *C. B. Adams*, iii, 433.
Fusion of iridium and rhodium, *R. Hare*, ii, 365.
of osmiuret of iridium, ii, 369.
of siliceous minerals affects their specific gravity, v, 258, vi, 133.
Fusulina in the coal formation of Ohio, ii, 293.
Fusus Oregonensis, v, 433.
Fyfe, A., on comparative values of coal for illumination, vii, 77, 157.

G.

Gale, on the Natchez bluff formation, v, 249.
Gale, a norther of the Gulf of Mexico, Oct., 1842, i, 153.
Gales of the European Seas, i, 364.
see farther, *Storm, Hurricane*.

Galena in Algeria, vi, 271.
Galerites Agassii, ii, 273.
Gallé, discoverer of LeVerrier's planet, iii, 130, 283.
Galvanic arc, form of diamond under the influence of, *J. H. Gassiot*, x, 404.
battery, use of sulphate of soda, with, iii, 427.
with potassium, iii, 428.
a mode of using Grove's, *C. Dewey*, vi, 253.
oxyd of zinc in the porous cup of Grove's, vi, 254.
electricity, probable conduction of, through moist air, ii, 204.
register to astronomical clock, vii, 206, viii, 231, x, 151.
ignition, cooling effects of hydrogen in, *W. R. Grove*, vii, 274.
wave, velocity of, *S. C. Walker*, viii, 142.
light, *C. G. Page* on, viii, 146.
see farther, *Electric*.
Galvanism, purifying liquids by, vi, 260.
ice a conductor of, *C. Dewey*, vi, 253.
Galvanometer, axial, *Page's*, i, 242.
Gambel, W., on Chamæa, a new genus of birds, iv, 286.
Gammaracea, genera of, *J. D. Dana*, viii, 135, 428, ix, 295.
Gardens, zoological, noticed, ix, 304.
Gardener, D. P., on the physical structure of plants, ii, 48.
remarks on the pollen-collectors of Campanula, v, 455.
Gardening, Dictionary of Modern, by *G. W. Johnson*, noticed, iv, 148.
Garnet, composition of, ix, 84.
Gaiot, action of nitric acid on rhubarb, x, 263.
Garrett, analyses of euphyllite, x, 118.
Gas for illumination from water, ii, 440.
on coal for, *Fyfe*, vii, 77, 157.
Gases and flames, diamagnetic condition of, v, 254.
Gassiot, J. P., form of diamond in the voltaic arc, x, 404.
Gastric juice, acid reaction of, iv, 102.
Gay Lussac, obituary of, x, 137.
Gay, Martin, obituary of, ix, 305.
Gehlenite, crystalline slag allied to, v, 128.
Gelatine sugar, products of oxydation by chromic acid, *Marchand*, ii, 413.
chemical constitution and transformations of, *T. S. Hunt*, v, 74, vi, 259.
products of decomposition of, v, 118, vii, 107, 109.
see *Glycocoll*.
Gems crystallized by heat, *Ebelman*, vii, 427.
Genera Floræ Amer. Bor.-orient., illustrata, noticed, viii, 452.
Genth, on minerals and rocks from Hecla, vii, 114.
Geoffroy St. Hilaire, proposal for a statue to, v, 133.
Geographical features of the globe, origin of, *J. D. Dana*, iii, 381.
Geography, Physical, *Guyot's* work on, noticed, x, 161.
Geology, Harpeth Ridge, Tennessee, i, 222.
of Brazil, i, 308.
of East Florida, *T. A. Conrad*, ii, 36.
Geology of Baldwin Co, Ala, sandstone rocks, ii, 419.
tertiary, Warren Co., Mississippi, *T. A. Conrad*, ii, 124.
of Texas, *F. Römer*, ii, 358, vi, 21.
of Rocky Mountains, *J. C. Fremont*, iii, 192, 273.
J. W. Abert, iii, 301.
of New Mexico, vi, 377.
of South Alabama, *C. S. Hale*, vi, 354.
of Charleston, S. C., vii, 187.
of Canada, ix, 12.
of the Falkland Islands, ii, 124.
of Panama, *E. Hopkins*, vi, 123.
of Kerguelen's Island, vii, 318.
of Auckland Islands, vii, 322.
of Crozet's group, vii, 317.
of Russia, general review of, iii, 153.
of Russia, Helmersen on, iii, 430.
of Malay peninsula, vi, 129.
parallelism between European and American, as regards palæozoic rocks, *E. de Verneuil*, vii, 45, 218.
limits of palæozoic period in, *D. D. Owen*, iii, 365.
Leonhard's, noticed, iii, 149.
of Vermont, Report on, by *C. B. Adams*, noticed iii, 144.
of the Isle of Wight, by *G. A. Mantell*, noticed, iv, 147, 230.
C. Lyell's new edition, noticed, iv, 147.
D. T. Ansted's works on, noticed, iv, 300, x, 144.
elementary, by *E. Hitchcock*, iv, 146.
work on the progress of, by *d'Archiac*, noticed, vi, 134.
Christy's letters on, noticed, vi, 298.
Museum of Economic, England, vi, 446.
of Exploring Expedition by *J. D. Dana*, noticed, viii, 454.
of Canada, *Logan's* report on, viii, 154, ix, 12.
of South Carolina, *Tuomey's* report reviewed, viii, 61.
in the state of Mississippi, x, 133.
Geological age of the White Mountains, N.H., i, 411.
survey of Vermont, i, 435.
formations, distribution of palms in, ii, 133.
marine formations, cause of absence from some coasts, *C. Darwin*, iii, 120.
results of the earth's contraction, *J. D. Dana*, iii, 176.
epochs, cause of, iii, 187.
changes in the plants of different, *A. Brongniart*, vi, 120.
maps from soundings, vi, 149.
Society of France, extraordinary session of, i, 146, ii, 440, iii, 271, iv, 449.
Chart of the world, by *Boué*, i, 310, ii, 272.
report on Keweenaw Point by *C. T. Jackson*, x, 65
reports on New York, reviewed, iii, 57.
Observations in South America, by *C. Darwin*, noticed, iii, 146.
Journal, London, noticed, iii, 146, iv, 450.
report on the Chippewa Land District of Wisconsin and Iowa, by *D. D. Owen*, reviewed, x, 1.
Society of London, anniversary of, vii 451.

Geological survey of Tennessee by *Troost*, viii, 419.
Geologists and Naturalists, Association of, see *Association*.
Georgia Historical Society, volume by, noticed, vii, 151.
Gerhardt, C., compounds of phosphorus and nitrogen, iii, 105.
atomic volume of some isomorphous oxyds of the regular system, iv, 405.
on nitric and hyponitric acids, v, 117.
on phosphamid, v, 407.
on atoms, vi, 176.
on salts, vi, 337.
on the composition of epidote, viii, 123.
on stearic and margaric acids, viii, 270.
on the chemical equivalents and notation of *Laurent* and himself, ix, 364.
Précis de Chimie Organique, noticed, iii, 145.
Organic Chemistry, reviewed, iv, 93, 171.
Geysirs, temperature of, at depths, iii, 288, v, 269.
confervæ in hot water of, iii, 288.
Gibbes, L. R., observations on some crustacea in the collection of the Acad. Nat. Sci. Philad., x, 122.
Gibbes, R. W., fossil Squalidæ of the United States, vii, 441.
on dorudon, v, 303.
Gibbon, J. H., on meteorite from North Carolina, ix, 143.
Gibbs, J. W., English prefixes derived from the Greek, vi, 206.
Gibbsite and Allophane, *B. Silliman, Jr.*, vii, 411.
Hermann's analyses of, ix, 408.
Gigantolite, pseudomorph of iolite, ii, 418.
Gilbertite, x, 115.
Gilding, fire, amalgamation of iron and steel, ii, 266.
Gillespie, W., Manual of road making by, noticed, iv, 148.
Gilliss, J. M., magnetical and meteorological observations by, noticed, i, 143.
report on a depot of charts and instruments, i, 294.
astronomical observations, noticed, iii, 149
astronomical expedition of, to South America, vi, 143, viii, 303.
Gilman, C. R., account of a compound achromatic microscope, made by Chas. A. Spencer, v, 237.
Gilmor, R., obituary of, vii, 142.
Girard, C., on the so-called biogen liquid, ix, 399.
Girard College, magnetical and meteorological observations, vii, 455.
Gismondine and Phillipsite, viii, 122.
Glass, analysis of, *Peligot*, ii, 114.
Glass snake, ii, 89.
plate, making of, in England, iii, 293.
auriferous, vi, 255.
photography on, vi, 259, x, 285.
colored, for glazing palm house at Kew, iv, 431.
Glaucophane, a new mineral, viii, 123.
Glen Roy roads, vii, 7.
Glinkite, analysis of, viii, 121.
Glonoine, viii, 267.
Gluten of the oat, iii, 331.
Glycocoll, and its compounds, *E. N. Horsford*, iii, 369, iv, 58, 326.
of hippuric acid, iii, 257.
A. Laurent, iii, 258.
and alcargene, relations of, *T. S. Hunt*, iv, 108, 266.
relations to hippuric acid, v, 417.
see *Gelatine sugar*.
Goadby's solution, how made, i, 265.
Goitre due to magnesian salts in water, vii, 304.
Gold in the Ural, ii, 120.
of the Rhine, ii, 419.
of Dedham, Mass., ii, 419.
in New Mexico, vi, 383.
in Russia, vi, 275.
in California, vi, 271, vii, 125, 290, 305, 307, viii, 415, x, 101.
assay of, at United States mint vii, 125.
analyses, viii, 128, 449, x, 255.
rocks accompanying, *J. D. Dana*, vii, 262.
of Montgomery Co., Maryland, ix, 126.
of Africa, vii, 436, x, 255.
mining in Virginia, vii, 295.
of South Carolina, viii, 65.
in Australia, viii, 290.
extraction of, *C. T. Jackson*, vi, 187.
extraction of from certain copper ores, ix, 297.
Goldfuss, A., obituary of, vii, 143.
Göppert, H. R., origin of coal of Silesia, iii, 119.
Index Palæontologicus, noticed, x, 115.
Gorrie, J., on the heat evolved from air by compression, x, 39, 214.
Gorgas, J., on certain frozen leaves, viii, 286.
Gorup-Besanez, on the occurrence of formic acid in stinging nettles, x, 108.
Gould, A. A., Principles of Zoology by, noticed, vi, 151.
on some shells of Connecticut, collected by J. H. Linsley, vi, 233.
Gould, B. A., orbits of the asteroids, vi, 28.
editor of new Astronomical Journal, viii, 450, ix. 151.
on Kirkwood's analogy, x, 26.
report on the history of the discovery of Neptune, x, 149.
Graham on the diffusion of liquids, x, 106.
Grains produced in the United States in 1847, vi, 288.
Granite rocks and minerals, origin of, *J. D. Dana*, ii, 351, 352.
Grape sugar, dulcose, a homologue of, x, 112.
Graphite in meteorites, ii, 384.
Grapsus, remarks on species of, *Gibbes*, x, 122.
Grass-cloth, notices regarding the plants yielding the fibre from which that of China is manufactured, x, 207.
Gray, Alonzo, Elements of Natural Philosophy by, noticed, ix, 308.
Gray, Asa, review of Sullivant's Muscology, i, 70.
on a new genus of Santalaceæ, i, 386.

Gray, Asa, new genera and species of Compositæ from Texas, iii, 274.
on nomenclature, in a notice of Agassiz's Nomenclator Zoologicus, iii, 302.
food of the mastodon, iii, 436.
Chloris Boreali-Americana of, noticed, iii 302.
Botany of the Northern States by, announced, iii, 454.
note on Carex loliacea and C. gracilis, iv, 19.
Manual of Botany, v, 297, 377.
Genera Illustrata of, noticed, vi, 300, viii, 452.
notice of DeCandolle's Prodromus, vii, 309.
notice of botanical collections in New Mexico, vii, 452.
notice of Hooker's Flora Antarctica, viii, 161.
notice of Posthumous papers by Wm. Griffith, vii, 454.
notice of Darlington's memorials of Bartram, ix, 85.
Gray, J. E., on animal of Spirula, i, 131.
description of a new species of antelope from W. Africa, v, 279.
Green sand, composition of, *W. Fisher*, ix, 83.
potash from, *Wurtz*, x, 326.
Gregory, Wm., preparation of pure phosphoric acid, i, 109.
purification and properties of chloroform, x, 261.
Griffith, W., notice of posthumous papers of, vii, 454.
Griffith, R. E., Universal Formulary of, noticed, ix, 457.
Grooves or scratches in North Wales, i, 277.
Grove, W. R., quantity of electrolysis varying with the sectional area of the electrolyte, iv, 411.
cooling effects of hydrogen in voltaic ignition, vii, 274.
heat produced by magnetism, viii, 266.
Guaia ornata, x, 122.
Guanite, ii, 268.
Guano, essay on, by *J. E. Teschemacher*, noticed, i, 311.
salts in. *E. F. Teschemacher*, ii, 267.
new substances in, *Herapath*, viii, 129.
Gückelberger, G., volatile products from the decomposition of albumen, &c., vii, 107.
on caprylone, viii, 271.
on the action of heat upon caprylate of lime, x, 258.
Gulf Stream, exploration of, v, 316.
Gun-cotton, iii, 102, 142, 259, 295.
applied to moving machinery, iii, 296.
Schönbein's patent, iv, 138.
use in blasting and mining, *T. B. Adams*, iv, 139, vi, 256.
formula of, and some allied compounds, iv, 140.
on the discovery of, *C. F. Schönbein*, iv, 440.
microscopic examination of, iv, 445.
used in silvering glass, viii, 117.
for tooth-ache, vii, 304.
Gun-paper and gun-sawdust, iii, 142, 260.
Gunpowder, report on force of, by *A. Mordecai*, noticed, viii, 309.
on a new, x, 260.
Guthrie, S., obituary of, vii, 143.
Gutta percha, iv, 289, 291, 432, v, 438, vi, 135, 246, vii, 203, 276.
pronunciation and etymology of the term, iv, 289, 433.
Guyot, Arnold, Observations on the Contrast in the physical Features and Resources between the Old World and the New World, x, 163.
The Earth and Man, by, noticed, viii, 158,.x, 161.
Gypsum, solubility of, ii, 114.
artificial, v, 112.
in culinary salt, v, 258.
in New Mexico, vi, 383, 389, 390.
of Onondaga salt group, origin of, vii, 175.

H.

Hackley, C. W., Treatise by, on Algebra, noticed, iii, 310.
Haidinger, W., on brandisite, v, 267.
Nat. Hist. Transactions by, noticed, vi, 154.
on dolomisation, vi, 268.
on hauerite, iv, 108.
Haidinger's brushes, x, 394.
Haile, J. C., comet of 1844-5, i, 449.
Hair of man, on the increase of, x, 129.
Haldat, M. de, on the appreciation of the force of magnets, ii, 255.
Haldeman, S. S., description of Unio abacoides, ii, 274.
on the Atops trilineatus, v, 107.
statistics of an iron furnace, v, 296.
material towards a history of the Coleoptera of the United States, v, 133.
on a new organ of sound in Lepidoptera, v, 435.
on the Death-watch, v, 435.
remark on the insects of Mexico, v, 435.
blast furnace for smelting iron with anthracite, vi, 74.
Cremastochilus in ant nests, vi, 148.
notice of Agassiz's Bibliography, vii, 454.
on new Hemiptera and Hymenoptera, ix, 108.
Hale, C. S., geology of South Alabama, vi, 354.
Hale, H., on the natives of Australia, i, 302.
migrations in the Pacific Ocean, i, 317.
origin, &c., of the Polynesians, i, 304.
Haliotis, new species, *C. Adams*, vi, 138.
Hall, Jas., geological section on Bear mountain, by, noticed, i, 311.
Paleontology of New York, noticed, iii, 454, v, 149.
Atops trilineatus, v, 322.
results of palæontological investigations in New York, v, 243.
translation of Verneuil on American and European palæozoic formations, with notes, v, 176, 359, vii, 45, 218.
Halley's Comet, ancient returns of, iii, 126.
note on, by *E. Loomis*, v, 370.
Hallowell, E., new bat from West Africa, ii, 273.
on Eryx maculatus, ix, 137.
Hancock, A., on boring bivalves, i, 130, vii, 288.

Hardcastle, E. L F., Map of Mexico, &c., noticed, x, 303.
Hare, R., salt radical theory of Liebig, i, 82, 377.
on the fusion of iridium and rhodium, ii, 365.
on the preparation of osmium, ii, 369.
fusibility of osmiuret of osmium, ii, 369.
on free electricity, iii, 334.
on the hydro-oxygen blowpipe and arrangements for fusing iridium, &c., iv, 37.
objections to the theories of Dufay, Franklin and Ampère, v, 230, 343, vi, 45.
on the explosion, during the fire at New York of 1845, vi, 281.
Harlanus Americanus, iii, 125.
Harmotome, composition of, viii, 123.
Harris, J., Man Primeval, ix, 456.
Harris, T. W., observations on the seventeen year locust, iii, 218.
Harris, W. S., protection against lightning, iv, 430.
nature and laws of electrical attraction, iv, 413.
Hartshorne, C., analysis of emerylite, x, 117.
Hartwall, C., on a new spodumene locality, at Norwich Mass., x, 264
Harvard, department of Science and Arts, founded by *A. Lawrence*, iv, 146, 294.
Harvey, W. H., on collecting and preserving Algæ, vi, 42.
works by, on Algæ, noticed, viii, 453.
Hassall, history of British fresh water Algæ, i, 454.
Hassler, maximum density of water, iii, 427.
Hassler's logarithmic tables, errors in, v, 400.
Hauerite, a new mineral, iv, 108.
Hausmann, cause of irised colors in minerals, vi, 254,
Haüyne, vii, 435.
Hawaii, old crater adjoining Kilauea, vii 287.
account of the eruptions of, *J. D. Dana*, ii, 342, ix, 347, x, 285.
Hawaiian and other islands of Pacific, how peopled, i, 317.
Hay, analysis of the ash of, ix, 20.
Hayes, A. A., on the manufacture of sulphuric acid, vi, 113.
blowpipe characters of pyrrhite, ix, 423.
on red zinc ore of New Jersey, ix, 424.
Hayes, J. L., notice of Waltershausen's work on Etna, ii, 157.
Heat, analogy of, to light, *J. Henry*, v, 113.
effect of, on the tenacity of iron, i, 299.
radiant, laws of, i, 429.
J. D. Whelpley's views on, ii, 404.
and magnetism, relations of, *W. A. Norton*, iv, 1, 207.
on the quantity of, evolved from atmospheric air by mechanical compression, *J Gorrie*, x, 39, 214.
on the production of light by, *J. W. Draper*, iv, 388.
of commencing incandescence, uniform for different substances, iv, 391.
slowly transmitted through clay, *J. Nasmyth*, vi, 119.
effects of, on the density of rocks, v, 258, vi, 133.
Heat, power of radiating, of different substances, vi, 255.
nocturnal radiation of, *Melloni*, vi, 418.
produced by magnetism, *Grove*, viii, 266.
polarization of, viii, 410.
rotation of the plane of polarization by magnetism, ix, 344.
secular changes of *L. W. Meech*, x, 49.
latent, effect in caoutchouc and necessity of, to elasticity, *C. G. Page*, iv, 341.
latent and specific in bodies, *C. C. Person*, vi, 111.
Hebe, a new planet, iv, 286, vi, 437.
Heberden, W., obituary of, ii, 145.
Heck, G., Iconographic Encyclopedia, notice of, viii, 451.
Hecla, eruptions of, ii, 290.
rocks and minerals of, *F. A. Genth*, vii, 114.
volcanic dust of, iii, 272.
temperature of geysirs, iii, 288.
Height of Vesuvius, i, 452.
of Madeira, vii, 314.
of Antarctic mountains, vii, 325.
of Oregon and California mountains, vii, 383, 387, 388.
see farther, *Level.*
Heights in the Himalayas and Andes, viii, 133.
Miss Colthurst's scale of, ix, 456.
Heine, determination of bromine in waters, ii, 113.
Heinsius, H., method of preparing theine, x, 109.
Heintz, W., a new acid found by, in human urine, i, 104,
quantitative determination of urea in urine, ii, 110.
on the quantitative determination of sulphur in organic bodies, v, 408.
on phosphates of magnanese, viii, 111.
composition of bone earth, viii, 271.
analysis of bones, viii, 410.
Helix annulata, *W. Case*, iii, 101, 276.
olfactory sense in, iii, 434.
Helicerus, new genus of belemnites, *J. D. Dana*, v, 434.
Hell, Hommaire de, obituary of, vii, 451.
Helmerson, on Russian geology, iii, 430.
Hematite, lithological relations in Connecticut, *J. G Percival*, ii, 268.
Hemiptera, new, *S. S. Haldeman*, ix, 108.
Hencke, K., on the new planet Astræa, i, 443.
discovery of the new planet Hebe, iv, 286.
Henfrey, A., Outlines of structural and physiological Botany, noticed, ii. 444.
Henry, J., protection of buildings from lightning, having metallic roofs, ii, 405.
induction of atmospheric electricity on telegraph wires, iii, 25.
observations on the interference of rays of heat, iv, 148.
on heat, v, 113.
elected Secretary of the Smithsonian Institution, iii, 133.
on the Smithsonian Institution, vi, 305.
Henwood, W. J., superposition of minerals in metalliferous veins, iii, 269.
Hermann, on native tin, ii, 415.
on xylite, ii, 413.
on turgite, ii, 415.

Hermann, on native antimoniate of lead, ii, 414.
stroganowite, ii, 413.
on Pennite, a new mineral, ix, 217.
notice of minerals, ix, 408.
on isomorphism, ix, 221.
Hermannsen, A. N., work by, on Malacozoa, noticed, vi, 151.
Herrick, E. C., on shooting stars of Aug. 10, and Nov. 13, 1845, i, 86.
ibid. of Aug., 1846, iii, 125.
ibid. of Nov., 1846, iii, 126.
ibid. of August, 1847, vi, 278.
ibid. 1848, vi, 279.
ibid. of April and August, 1849, viii, 429.
Aurora borealis of Nov., 1846, iii, 126.
of Nov. 17, 1848, vii, 127, 293.
Auroral belt, of April 7, 1847, iii, 440, iv, 145, vii, 126.
Biela's comet and companion, i, 293. 446.
Herschel, J. F. W., life of Bessel, iv, 305.
results of astronomical observations at Cape of Good Hope, v, 86.
Outlines of Astronomy by, noticed, viii, 456.
Heteromerism, *see Isomorphism.*
Heulandite, analysis of, viii, 122.
Hibernation of animals, v, 108.
Higgins, Jas., Report as State Agricultural Chemist, to the house of Delegates of Maryland, mentioned, x, 149.
Highland Agricultural Society's prize of £50, awarded to J. P. Norton, i, 309.
Hildreth, S. P., Meteorological Journal at Marietta, Ohio, i, 202 (1845), iii, 212 (1846), v, 250 (1847), vii, 240 (1848), ix, 264 (1849.)
on the seventeen years locust in 1846, iii, 216.
Pioneer History by, noticed, viii, 157.
Himalayas, heights in, viii, 133.
Hind, R. B., on the number of known plants, i, 132.
Hind, J. R., discovery of the planet Iris, iv, 425.
on the new planet Flora, v, 135.
Hind's Comet, ii, 439; iii, 132, 282.
Hippopotamus at Sierra Leone, iii, 125, viii, 152.
Hippuric acid, transformation of, into benzoic acid and glycocoll, iii, 257.
Hitchcock, E., species of fossil footmarks, iv, 46.
trap tuff or volcanic grit of Connecticut valley, iv, 199.
notice of Elementary Geology by, iv, 146.
memoir on Fossil Footmarks, by, noticed, viii, 151.
Hitchcock, E., Jr., on a new spodumene locality at Norwich, Mass., x, 264.
Hofmann, preparation of oxychlorid of carbon, x, 258.
Holmes, F. S., geology of Charleston, S. C., vii, 187.
Homologies of the vertebrate skeleton, *R. Owen*, iv, 123.
Honey, sugars of, *Soubeiran*, x, 113.
Hooker, J. D., Species Filicum, i, 454, iii, 147.
on the Diatomaceous vegetation of the Antarctic Ocean, iv, 424.
Hooker, J. D., botanical mission to India, v, 290.
Journal of Botany, v, 453.
London Journal of Botany and Kew Garden Miscellany, vii, 453.
extent of flora of coal era in Britain, viii, 131.
Flora Antarctica of, noticed, viii, 161.
description of the table land of Thibet, ix, 298.
Hopkins, views on the origin of joints in rocks, iii, 393.
Hopkins, E., Isthmus of Panama, vi, 123.
Hopkins, T., on rise of isothermal lines in northern winters, x, 397.
Horn, a substitute proposed for, *Rochon*, ii, 266.
Hornblende, x, 253, 254.
Horse's stomach, analysis of concretion from, iv, 274.
Horsfield, T., on the Island of Banka, vii, 86.
Horsford, E. N., nutrition of vegetable substances reckoned from the nitrogen present, ii, 264.
Chemical Essays relative to agriculture, noticed, iii, 144.
on glycocoll and its compounds, iii, 369, iv, 58, 326.
Varrentrapp and Will's method for the determination of nitrogen improved, iv, 267.
Strecker's researches on oxgall, communicated by, v, 417.
resistance presented to fluids by electric conduction, v, 36.
new blast lamp, v, 126.
Liebig's new mode of separating nickel and cobalt, communicated by, v, 411.
on motions of fluids in animal bodies, v, 415.
on the relations of barium, strontium, &c., ix, 176.
Horticulturist, by *A. J. Downing*, notice of, ii, 298.
Horton, W., obituary of, i, 152.
Hot surfaces, phenomena attendant on the projection of bodies on, i, 99.
Hot Springs, Rocky Mountains, iii, 198, 450.
in Cascade Range, iii, 200.
sulphur, in Koordistan, iii, 349.
Hough, F. B., on sulphuret of nickel, ix, 287.
mineral localities of northern New York, ix, 288, 424.
Houghton, D., obituary of, i, 150, v, 217.
Howardite, a new mineral, vi, 253, 405.
Hubbard, O. P., notices of Koordistan, iii, 347.
on erosion in New Hampshire, ix, 158.
on the resuscitation of frozen fish, x, 132.
rutile and chlorite in quartz, x, 350.
Hubbard, B., memoir of D. Houghton, v, 217.
Hudson river, time of opening and closing, vi, 295.
Hudsonite, analysis of, ix, 228.
Human bones, alledged fossil, v, 249.
races, *T. Smyth* on the unity of, noticed, x, 143.
African, x, 276.
Humboldtite, crystalline slags allied to, v, 128.
Humite identical with chondrodite, viii, 123.
Hunt, E. B., on the dispersion of light, vii, 364.

Hunt, *E. B.*, on the interpretation of Mariotte's law, ix, 412.
Hunt, *R.*, on actino-chemistry, i, 254.
influence of magnetism on crystallization, ii, 116.
influence of light on the growth of plants, iii, 112, iv, 410.
on colored glass for glazing green-houses, iv, 431.
influence of light in preventing chemical action, vii, 272.
on the application of magnetism as a motive power, x, 282.
chemical action of the sun, x, 405.
Hunt, *T. S.*, on enceladite, ii, 30.
on ozone, ii, 103.
artificial formation of specular iron, ii, 411.
analysis of Texas and Lockport meteoric iron, ii, 370.
formation of organic bases, ii, 408.
review of Gerhardt's Précis de Chimie Organique, iv, 93, 171.
relations of glycocoll and alcargene, iv, 108, 266.
action of sulphuretted hydrogen upon hyponitric ether, iv, 350.
translation of Gerhardt on isomorphous oxyds, iv, 405.
chemical constitution of gelatine, v, 74.
observations on the nitrates, phosphates, etc., v, 118.
on the nitriles, v, 119.
on benzine and thialdine, v, 123.
on anhydrid amids, v, 264.
nature of nitrogen and nitrous oxyd, v, 407.
analysis of chromic iron, v, 418.
on the atomic volume of sulphur and nitrogen and on Laurent's theory of binary molecules, vi, 170.
note on the chemical nature of gelatine, vi, 259.
constitution of proteine, vii, 109.
sulphuric acid springs and gypsum of the Onondaga salt group, vii, 175.
on some principles to be considered in chemical classification, vii, 399, viii, 89.
homologues of phenol, vii, 431.
algerite, a new mineral species, viii, 103.
mineral springs of Canada, viii, 364, ix, 266.
decomposition of aniline by nitrous acid, viii, 372.
on glonoine, viii, 267.
on the geology of Canada, ix, 12.
on the constitution of leucine, with remarks on the late researches of Wurtz, ix, 63.
translation of Gerhardt on chemical equivalents and notation, ix, 364.
Hunt's Merchant's Magazine and Commercial Review, noticed, x, 148.
Hurricane, Antje's, of 1842, i, 2.
second, of Sept. 1842, i, 15.
of Cuba and Atlantic, Oct., 1844, *W. C. Redfield*, i, 333, ii, 162, 311.
of the Charles Heddle, ii, 183.
Hutton's mathematical tables, errors in, v, 398.
Hutzelmann, *A.*, on dillnite, x, 247.
Hyalite and hydrophane, artificially formed, v, 412.
Hybodus found fossil, i, 280.
Hybrid quadrupeds, iii, 39.
birds, iii, 203.
reptiles, fishes and molluscs, iii, 208.
plants, iii, 209.
Hybridity, observations on, *S. G. Morton*, iii, 39, 203.
Hydrarchos, identity of, with the zeuglodon, ii, 129.
Hydro-benzamid, benzoline from, ii, 408.
Hydrocarbons liquid, used for illumination, viii, 109.
Hydrocyanic acid, new test for, iv, 101.
Hydrodynamics, memoirs on, read before the British Association, iii, 140.
Hydrogen, cooling effects, in voltaic ignition, *W. R. Grove*, vii, 274.
passage of, through solid bodies, viii, 272, ix, 421.
Hydrogen blowpipe, *R. Hare*, iv, 37.
Hygeia, elements of the planet, viii, 428.
Hymenoptera, new species of, ix, 108.
Hyops depressifrons, a new mammal, v, 104.
Hypersthene, x, 147.
Hypnum paludosum, i, 71.
Hypochlorous acid, preparation of, *Williamson*, ii, 261.
Hyposclerite, x, 250.

I.

Ice, contraction of, in cooling, i, 117.
dilatation of, iii, 450.
manufacture of, vii, 280.
Icebergs, temperature of sea near, vi, 143.
of the antarctic, *J. C. Ross*, vii, 324, viii, 14.
Ichthyosaurus, supposed embryo of, found, i, 276.
Iconographic Encyclopædia of *G. Heck*, noticed, viii, 451, ix, 151.
Idocrase, crystals allied to, in slags, v, 127.
in Santord, Me., vi, 425.
manganesian, x, 251.
Igneous rocks, origin of, and their relations, *J. D. Dana*, ii, 343.
Ignition, phenomena of, v, 1.
Iguanodon, remains of, found in the Isle of Wight, i, 275.
new discoveries of bones of, *G. A. Mantell*, vi, 429, vii, 150, 438, 439.
Illumination, liquid hydrocarbons for, viii, 109.
Ilmenium, iii, 116.
Incandescence of iron, copper, &c., in the vapor of alcohol, ii, 260.
Incombustible, mode of rendering substances, viii, 118.
Incombustible man, viii, 432.
Index Palæontologicus, of *Bronn*, *Göppert* and *Meyer*, noticed, x, 145.
India, cotton in, ii, 141.
iron and coal in, iv, 109.
tea and American cotton in, vii, 133.
Indian races, ethnography and archæology of, *S. G. Morton*, ii, 1.
forms of skulls, mode of burial, ii, 3, 5.

Indian relics and mounds, *E. G. Squier*, ii, 284, iii, 237, iv, 439.
in Kentucky, *E. G. Squier*, viii, 1.
discoidal stones, ii, 13, 216, 287.
pipestone, ancient, *E. G. Squier*, ii, 287.
hieroglyphical mica, iv, 145.
sculpture and artificial footprints, *E. H. Davis*, iii, 286.
Indian Archipelago, vi, 157.
corn, chemical examination of, *J. H. Salisbury*, noticed, viii, 307.
summers the placid intervals between autumnal storms, *W. C. Redfield*, i, 169.
Indians of the Upper Sacramento, vii, 256.
Indianite, analysis of, viii, 389.
Induction by analogy, *J. D. Whelpley*, v, 33, 328.
S. Tyler, v, 319.
Infinite quantities, considerations on, *S. Alexander*, vii, 333.
Infusoria of Maryland, vii, 437.
of volcanic rocks, noticed, by *Ehrenberg*, i, 123.
siliceous shields of, in guano, i, 442, 452.
in Oregon, ix, 140.
in Florida, x, 282.
on the teeth, ix, 442.
Inglis, R. H., address before the meeting of the British Association, iv, 239.
Ink for steel pens, [illegible], 109.
Inorganic substances in plants, v, 125.
Insects of Mexico, v, [illegible].
see farther, *Zoology*.
Instruments, self-registration of magnetical and meteorological, iii, 428, ix, 319.
Interpolations, new formula for, *J. H. Alexander*, vii, 14.
Intonation, perfect musical, ix, 68, 199.
Inundation, see *Flood*.
Involution and evolution by logarithms, *J. L. Riddell*, vii, 232.
Iodine, new mode of detecting, vii, 106, ix, 114.
new property of, *St. Victor*, vi, 258.
in fresh water plants, x, 110.
Iodolite, a meteoric mineral, ii, 380.
Iolite, pseudomorphs of, ii, 418.
Iowa, fall of meteoric stones, iv, 288, [illegible].
geological report on the Chippewa Land District of, reviewed, x, 1.
Iridium, fusion of, *R. Hare*, ii, 365.
apparatus for fusing. *R. Hare*, iv, 44.
Iris, new planet, discovery of, iv, 425.
Irised colors of minerals, cause of, *Haidinger*, vi, 254.
Irish sea fisheries, resources of, iv, 437.
Iron, atomic weight of, i, 103.
analysis of wrought, *Miller*, vii, 276.
manufacture of, *J. L. Smith*, i, 170, ii, 95.
tenacity of, how influenced by heat, i, 299.
vibrations produced in, by a galvanic current, i, 426.
quantitative determination of, *Marguerite*, ii, 257.
incandescence of, in the vapor of alcohol, ii, 260.
amalgamation of, to prepare for fire-gilding, ii, 266.
meteoric, see *Meteoric*.
Iron, native, of Canaan, Ct., v, 292.
compounds of, with carbon, iv, 104.
and coal in India, iv, 109.
blast furnace for smelting with anthracite, *S. S. Haldeman*, vi, 74.
statistics of, *S. S. Haldeman*, v, 296.
manufacture in Great Britain, iii, 291.
soldering cast and wrought, viii, 117.
nitrates of, *J. M. Ordway*, ix, 30.
reaction with anhydrous sulphuric acid, viii, 271.
ores, on Fuchs's method of analyzing, *Rogers*, vi, 395.
ores of South Carolina, viii, 65.
Islands, trends of groups of, *J. D. Dana*, iii, 383.
Isodynamic lines of North America, iv, 197.
Isoëtes, species of, *A. Braun*, iii, 52.
Isomerism, arragonite and calc spar an instance of, ii, 417.
Isomorphism of water with magnesia, &c., *Scheerer*, ii, 115, v, 381, vi, 57, 189.
Berzelius and *Laurent*, v, 409.
polymerous, observation on, viii, 128.
of minerals, heteronomic, *J. D. Dana*, ix, 220, 407, 429, x, 121.
Isomorphous oxyds of the regular system, atomic volume of, *C. Gerhardt*, iv, 405.
Isopodous crustacea, new, *J. D. Dana*, viii, 424.
Italian Congress of Science, i, 452, iii, 142, v, 297.
Italy, fall of meteorites in, iii, 141.
climate of, vii, 304.
Ivanoff on kaliphite, ii, 416.

J.

Jackson, C. T., on cancrinite, nepheline and zircon, from Maine, i, 119.
ores and minerals of Lake Superior, ii, 118, vii, 286, x, 65.
inhalation of ether producing insensibility to pain, iii, 444.
Beaumont's tribute to American geologists, v, 137.
Circular on a statue to M. Geoffroy St. Hilaire, v, 138.
extraction of gold, vi, 187.
tellurium in Virginia, vi, 188. x, 78.
description of vermiculite, ix, 422.
water in "Anhydrous Prehnite," x, 121.
analysis of water from a hot spring near the Great Salt Lake, x, 134.
Jackson, J. R., work on minerals and their uses, noticed, x, 147.
Jacksonite, or anhydrous prehnite, vi, 269, x, 121.
Jacob, W. S., on the extinction of light in the atmosphere, x, 129.
Jacobi, elected a member of the French Academy, ii, 291.
Jacquelaine, V. A., estimation of copper, iii, 110.
new process for obtaining the chromates, v, 262.
Jade allied to tremolite, *Damour*, ii, 267.
Japan, analogies of flora of, with United States, ii, 135.
smelting copper in, viii, 336.

Jasper in Upper California, vii, 257, 261.
Jenyns, L., observations in natural history. noticed, ii, 446.
Jobert, A. C. G., Philosophy of Geology and Ideas of a new system of Philosophy, noticed, vii, 150.
Johnson, E., meteorological observations at Sandwich Islands, iii, 437.
Johnson, G. W., Dictionary of Model Gardening, iv, 148.
Johnson, S. W., on sulphuret of nickel, ix. 287.
Johnson, W. R., on the tenacity of iron, i, 299.
on coloring geological sections, v, 111.
on artificial production of gypsum, v, 112.
Johnston, A. K., Physical Atlas, ix, 454.
Joints in rocks, origin of, iii, 393.
Jones, T. P., obituary of, v, 443.
Jones, T. W., on the blood-corpuscle, i, 128.
Jones, W., on the death and disappearance of some trees and shrubs, i, 450.
Jordan, Lynch's observations on, vi, 441, viii, 317.
Molyneux on, vi, 146.
Joslyn, C. F., limit of subdivision by trituration, v, 48.
Journal, Boston, of Natural History, see *Boston.*
of the Academy of Natural Sciences at Philadelphia, see *Academy.*
of the Lyceum of Natural History of New York, see *Lyceum.*
of Botany, Hooker's, v, 453.
of the Indian Archipelago and Eastern Asia, noticed, x, 150.
Jussieu's Elements of Botany, viii, 303.

K.

Kaliphite, a new mineral, ii, 416.
Karafiat, analyses of Dillnite, x, 247.
Karsten, Martinsite, a new mineral, ii, 119.
compounds of iron with carbon, iv, 104.
amorphous boracite, iv, 415.
Kasbeck, ascent of peak of, i, 308.
Keilhauite, a new mineral, ii, 415.
Keller, F., on the preparation of metacetonic acid, x, 256.
Keller, W., analysis of a calculus from the bladder of a whale, ix, 118.
Kendall, J. L., analysis of Washingtonite of Shepard, i, 122.
Kent, E. N., on gutta percha, vi, 246.
Kentucky, mounds of, *E. G. Squier*, viii, 1.
Kerguelen's Land, remarks on, vii, 318, viii, 163.
Kew, Botanical garden at, iv, 251
colored glass for glazing Palm house, iv, 431.
Keweenaw Point, geological structure of, *C. T. Jackson*, x, 65.
Keyserling, Geology of the Petschora Land, noticed, iv, 419.
Kilauea, Hawaii, analysis of glassy scoria of, ii, 273.
on the old crater, adjoining, *C. S. Lyman*, vii, 287.
eruptions of, *J. D. Dana*, ii, 342. ix, 347, x, 285.
King, A. T., on footprints in the coal rocks of Pennsylvania, i, 268.
Kirkwood, D., a new analogy in the periods and rotations of the planets, ix, 395.
Kirkwood's Analogy, examination of, *S. C. Walker*, x, 19.
ibid, *B. A. Gould, Jr.*, x, 26.
Knapp, F., Chemical technology by, noticed, viii, 156, 308.
Knoblauch, H., on the deportment of crystalline bodies between the poles of a magnet, ix, 414.
magneto-optic properties of crystals, x, 393.
Knop, W., on the atomic weight and compounds of mannite, x, 111.
Kolbe, H., on decomposition of cyanid of ethyle, v, 119.
Koninck, L. de, work by, on fossils, noticed, vi, 454.
Koordistan, springs, salt, mines, &c., of, iii, 347.
Kopp, H., atomic weight of silica, viii, 414. ix, 284.
Kraurite in Tennessee, v, 421.
Krisuvigite identical with Brochantite, ii, 417.
Kröyer on Gammaracea, viii, 135.
Kumptolite, vi, 446.
Kunth, obituary of, x, 138.
Kunze, supplement to Schkuhr's Carices, by, noticed, ii, 301.
on some U. S. ferns, vi, 80.
Kupffer, M. A. T., Annuaire Magnetique of, i, 139.
observations meteorologiques faites à Arkangel, i, 140.

L.

Labradorite, x, 253, 254.
Lacustrine deposits near the great lakes, *J. A. Lapham*, iii, 90.
Lagoons of Tuscany, ix, 431.
Lake Baikal, v, 295.
Erie, terraces and ridges bordering on, x, 31.
Ngami, discovery of, x, 278.
Ontario, phenomena in, *C. Dewey*, ii, 85, 87.
relative level of, *C. Dewey*, iii, 444.
Pyramid, California, iii, 201, vii, 382.
Superior, ores and minerals of, *C. T. Jackson*, ii, 118, vii, 286, x, 65.
new zoological species from, described, x, 125.
erratic phenomena about, x, 83.
mass of native copper from, iv, 115.
columnar basalt on, iv, 118.
meteorology of, and causes of change of level, *W. W. Mather*, vi, 1.
levels of, vi, 19.
work on, by *Agassiz*, noticed, ix, 455.
Torrens, South Australia, i, 452.
Great Salt, or Timpanogos, and Utah, Rocky Mountains, iii, 198, vi, 280, vii, 382.
Lalande, star observed by, identical with Neptune, iv, 133.

Lalande's tables of logarithms, errors in, v, 399.
Lamming, *R.*, purification of coal gas, x, 133.
Lamont, *J.*, magnetic observations at Munich, i, 141.
Lamp, new blast, *E. N. Horsford*, v, 126.
Lancasterite, a new mineral, ix, 216.
Land and water on the earth, relative quantities of, *S. P. Rigaud*, ii, 289.
Lane, *J. H.*, on the laws of electric condition in metals, i, 230.
novel mode of discharging a Leyden battery, vii, 418.
Lapham, *D.*, obituary of, x, 298.
Lapham, *I. A.*, lacustrine deposits near the great lakes, iii, 90.
Lapis lazuli in Siberia, vi, 425.
Lardite, analysis of, viii, 121.
Lassaigne, *J. L.*, use of iodine in distinguishing arsenic from antimony, ii, 111.
on gypsum in culinary salt, v, 258.
on arsenic in mineral waters, ix, 418.
Lassell, on the satellite of Neptune, v, 135.
Latent heat, effect in caoutchouc, and necessity of, to elasticity, *C. G. Page*, iv, 341.
Lathrop, *S. P.*, on single and double vision, vii, 343.
Laurent, *A.*, on organic compounds divisible by four, i, 118.
on sugar of gelatine, iii, 258.
formation of chloro-cyanilide, iii, 258.
general formulas for silicates and borates, v, 405.
on isomorphism, v, 409.
theory of binary molecules, vi, 170.
on sponge, vi, 277.
composition of organic alkalies, vi, 420.
on dulcose, a homologue of grape sugar, x, 112.
composition of tungstates, vii, 281.
of stearic and margaric acids, viii, 270.
action of nitric acid upon butyrone, ix, 278.
chemical equivalents and notation of, ix, 364.
Lava of Hecla, *F. A. Genth*, vii, 114.
Lavoisier, works of, to be published by the French government, ii, 291.
Law of Mariotte, *E. B. Hunt* on, ix 412.
Laws of motion in elastic fluids, ix, 334.
Lawrence, *A.*, donation of, to Harvard, iv, 146, 294.
Lawrence, *G. N.*, a new species of Anser and Procellaria. iii, 435, 436.
Lawrence scientific school, vii, 303.
Lea's Catalogue of Plants of Ohio, viii, 302.
Lead, method of estimating, *F. Domonte*, iii, 255.
antimoniate of, native, ii, 414.
carbonate of, at Rossie, N. Y., iii, 117.
cupreous sulphato-carbonate of, in Missouri, iii, 117.
mines of Koordistan, iii, 353.
diseases, *S. L. Dana*, on, vi, 299.
yield of, in Great Britain, vi, 445, viii, 448.
native oxyd of in Mexico, viii, 420.
statuary. x, 286.
Leblanc, *F.*, on the air of mines, i, 118.
on oxyd of lead, i, 119.
Lecomte, *C.*, action of sulphuretted hydrogen on nitric acid, and process for obtaining sulphur from gypsum, v, 261.
Le Conte, *J.*, a new species of Apus, ii, 274.
Le Conte. *J. L.*, on coracite, iii, 117, 173.
plumbo-resinite and cupreous sulphato-carbonate of lead in Missouri, iii, 117.
notice of five new species of fossil mammalia from Illinois, v, 102.
Lectures of Matteucci on living beings, v, 390.
Ledebour, Flora Rossica, noticed, i, 454, iii, 148, v, 453.
Lee, *I.*, on reptilian footmarks, ix, 124.
Lee, *T. J.*, work by, of geodetic tables, formulas, &c., noticed, viii, 306.
Leedom, *E. C.*, on the phenomena of solar rays, i, 28.
Lefroy. *J. H.*, on self-registration of instruments by photography, ix, 319, 444.
Legumin, iii, 329.
analysis of, v, 26.
Leibnitz, two hundredth anniversary of the birth of, in Germany, ii, 292.
extract from Protogæa of, iii, 176.
Leidy, *J.*, wings of Locustæ, iii, 125.
olfactory sense in Mollusca, iii, 434.
on a new genus and species of fossils, Ruminantia, v, 276.
on the eyes of the Balanus, vi, 136.
on entophytes. ix, 441.
on a fossil apir, ix, 140.
Leonhard's Taschenbuch für Freunde der Geologie, noticed, iii, 149.
Lepidolite, x, 116.
Lepolite, ix, 411.
Leptodon Ohioense, i, 71.
Lessonia, remarks on, viii, 170.
Leskea denticulata, i, 71.
Lesueur, memoir and writings of, viii, 189, 215.
Lettsom, *W. G.*, translation of *Fischer's* analysis of Braunau iron, v, 338.
of Scheerer's paper on isomorphism, v, 381, vi, 57, 189.
Leucine, from caseine, *Liebig*, ii, 113.
constitution of, ix, 63.
Level, ancient, of Lake Superior, vi, 19.
of Dead Sea and Caspian, vi, 148, viii, 331.
of Black Sea, vi, 294.
see farther, *Height*.
changes of, indicated by sea beaches, *R. Chambers*, iv, 323, vii, 1, viii, 33, 86.
indicated by fiords, *J. D. Dana*, vii, 379, 380.
Le Verrier, honors conferred on, iii, 282.
planet of, see *Neptune*.
Levol, *A.*, separation of tin from antimony, i, 107.
analysis of native gold, x, 255.
Lewey, *B.*, on wax, i, 117.
Lexicon Scientiarum by *H. McMurtrie*, noticed, iv, 454.
Leyden battery, a novel mode of discharging, *J. H. Lane*, vii, 418.
Lichen, Lecanora, manna from, iii, 352.
Lichens of New England, by *Tuckerman*, v, 452.
Liebig, *J.*, on valerianic acid and leucine, ii, 112.
test for prussic acid, iv, 101.
method for sulphocyanid of ammonium, iv, 101.

Liebig, J., facts in physiological chemistry, iv, 135, 298.
composition of quinoidine, iv, 271.
on caseine, v, 119.
on the alkaloids of aldehyde, v, 122.
separation of nickel and cobalt, v, 411.
on motions of fluids in animal bodies, v, 415.
action of cyanic acid on alcohol and aldehyde, v, 409.
work on chemistry of food, noticed, vi, 149.
preparation of succinic acid from malate of lime, ix, 117.
separation of butyric, valerianic and acetic acids, ix, 419.
Liebigite, a new mineral, v, 337.
Liebnerite, a new mineral, vi, 275.
Life, duration of, in the several professions, iii, 297.
(mortality) of children, iii, 297.
Light, heat and electricity, identical, i, 146.
relation of, to magnetism, i, 425.
views of *Faraday* on, ii, 118, 401.
J. D. Whelpley on, ii, 402.
of the moon, calorific, *Melloni*, ii, 256.
influence of, on plants, *R. Hunt*, iii, 112, iv, 410, 431.
on the production of, by heat, by *J. W. Draper*, iv, 388.
from incandescence, begins at a specific temperature for all bodies, iv, 389.
color of rays from incandescent bodies, iv, 391.
different properties of various rays of, in photography, iv, 409, vii, 272.
theory of polarization, *Challis*, iv, 412.
production of, by chemical action, *J. W. Draper*, v, 159.
physical cause of production of, v, 170.
ray of, rotated by electro-magnetism, vi, 153.
physical phenomena dependent upon the progressive motion of, *S. Alexander*, vi, 397.
influence of, preventing chemical action, vii, 272.
on the dispersion of, *E. B. Hunt*, vii, 364.
galvanic, polarization of, *C. G. Page*, vii, 375.
on the extinction of, in the atmosphere, x, 129.
chemical action of solar, *R. Hunt*, x, 405.
polarizing structure of the eye, *D. Brewster*, x, 394.
on metallic reflection of, *G. G. Stokes*, x, 331.
fictitious displacement of fringes of interference, *G. G. Stokes*, 392.
Light-houses, *T. A. Jenkin's* Report on, noticed, iii, 301.
Lightning, protection from, of buildings with metallic roofs, *J. Henry*, ii, 405.
protection against, *W. S. Harris*, iv, 430
effect on telegraph wires, iii, 25.
rods, height of, *E. Loomis*, x, 320.
Limber, J., petrified wood in Texas, ii, 124.
Lime, phosphate and pyrophosphate of, viii, 112.
Lime, on the action of heat on caprylate of, x, 258.
Limestone, source of fluor, apatite and chondrodite in, *J. D. Dana*, ii, 88.
of St. Louis, *G. Engelman*, iii, 119.
phlogopite mica peculiar to, x, 382.
Limnæus stagnalis, ear of, iv, 131.
Lindley's Vegetable Kingdom, noticed, ii, 152.
Lindsayite, ix, 411.
Linen, detection of cotton in, iv, 106.
Linnæan Society, Transactions of, noticed, v, 451.
Linsley, J. H., shells of Connecticut, vi, 233,
Liquids, effect of cohesion upon point of ebullition, *F. Donny*, ii, 256.
on the diffusion of, *Graham*, x, 106.
Liquid protoxyd of nitrogen, viii, 113.
List, J. C., on turpentine camphor, vii, 430.
Literary World, a weekly gazette, noticed, iii, 311.
Litharge, solution of oxygen in fused, iii, 255.
Lithia, quantitative determination of, i, 260.
Lithoceramic, vi, 446.
Lithographic limestone, vi, 446.
Liver, sugar in, x, 112.
Livingston, D., discovery of Lake Ngami, x, 278.
Lochaber, parallel roads of, vii, 7.
Locke, J., on single and double vision, vii, 68.
astronomical clock with telegraphic register, vii, 206.
on the electro-chronograph, viii, 231.
phantascope, ix, 153.
Locust, seventeen-year, *S. P. Hildreth*, iii, 216.
T. W. Harris, iii, 218.
Locustæ, wings of, *J. Leidy*, iii, 125.
Logan, W. E., Report on the Geology of Canada, viii, 154, ix, 12.
Logarithmic tables of Prof. A. D. Stanley, v, 145.
errors in different, *A. D. Stanley*, v, 398.
Longitude, system of computation on coast survey, v, 312.
determined by means of magnetic telegraph, v, 313, x, 151.
by altitudes of the moon, *W. Chauvenet*, viii, 226.
Lonsdale, W., on American eocene fossils described by, i, 220, iv, 357.
Wollaston medal given to, ii, 440.
Loomis, E., Algebra by, noticed, ii, 298.
cause of the double character of Biela's comet, ii, 437, 438.
magnetism of the United States and vicinity, iv, 192.
on a water spout, iv, 362.
historical notice of the discovery of the planet Neptune, v, 187.
note on Halley's comet, v, 370.
on the electricity of a plate of zinc buried in the earth, ix, 1.
on height of lightning rods, x, 320.
electrical phenomena of certain houses, x, 321.
Loomis, I. N., on the geology of Harpeth Ridge, Tenn,, i, 222.
Loripes parilis, v, 432.
Louyet, on the nature of hydro-fluoric acid, v, 408.
extraction of nickel and cobalt, viii, 112.

Louyet, passage of hydrogen through solid bodies, ix, 421.
on the preparation of pure oxyd of cobalt, x, 258.
Lovering, J., on the American prime meridian ix, 184.
on the aneroid barometer, ix, 249.
Löwig, C., on stibethyle, x, 263.
Loxoclase, a new mineral, ii, 414.
Luce, J. B., theory of numbers, viii, 55.
Luminiferous ether, *Faraday's* views on, ii, 118.
Lunar theory, progress in, iv, 242, 243.
Lunar, see *Moon*.
Lyceum of Natural History, N. Y., annals of, i, 453, iii, 454, v, 304, vii, 311.
ibid, officers of, i, 453, vii, 311.
Lyell, C., Alabama eocene, i, 313.
Alabama coal field i, 371, ii, 228, iii, 37.
fossil footprints in Pennsylvania, ii, 25.
delta of the Mississippi, iii, 34.
antiquity of the earth, iii, 38.
on the alledged coexistence of man with the Megatherium, iii, 267.
on the coal field near Richmond, Va., iv, 113.
new edition of Principles of Geology, iv, 147.
age of nummulite limestone of Alabama, iv, 186, vii, 114.
age of the nummulitic formation of the Alps, x, 265.
Lyman, C. S., on the old crater adjoining Kilauea, vii, 287.
on California and the gold mines, vi, 271, vii, 290, 305, viii, 415, ix, 126.
on Cinnabar in California, vi, 270.
platinum and diamond in California, viii, 294.
Lynch, W. F., expedition to the Dead Sea, vi, 441, viii, 317.

M.

Macgowan, D. J., notices regarding the fibre from which the grass-cloth of China is manufactured, x, 207.
Macropetalicthys, a new fossil fish, i, 371.
Macrosystis, remarks on, viii, 170, 173.
McCulloch, R. S., Report of, on sugar, viii, 150.
McCall, G. A., a new species of Columba, iv, 421.
notes on Mexican birds, vii, 114.
M'Coy, F., fossils of Australia, v, 273.
Maculloch, on the roads of Lochaber, vii, 7.
McMurtrie, H., Lexicon Scientarum by, noticed, iv, 454.
MacWhorter, A., divisibility of magnitude, vi, 329.
Madeira, on the plants of, iv, 119.
height of, vii, 314.
Mädler, chart of moon by, ii, 336.
on the central sun of the universe, ii, 433.
Maes and *Clemandot*, boracic acid in vitrification, ix, 305.
Magellan Straits, coal of, vii, 304.
Magnesia nemalite, a hydrate of, vii, 434.
Magnets, on the best kind of steel for, and mode of operation in making, *W. Petrie*, iii, 112.
Magnet, revolution of, without visible support. *C. G. Page*, iii. 252.
Magnets, on ascertaining the force of, *de Haldat*, ii, 255.
Magnetic action, generality of, *M. Faraday*, i, 421, ii, 233.
form of force, *Faraday*, vii, 425.
condition, on the mode of development, *Scoresby*, iii, 114.
constants, Gauss's, iii, 140.
instruments, photographic self-registering, iii, 428, ix, 319, 444.
forces diurnal and annual variations of, *W. A. Norton*, x, 330.
maxima and minima at Philadelphia, 1844, x, 331.
perturbations, vi, 296.
dip and variation in the Antarctic, *Ross*, viii, 15.
equator, *J. C. Ross*, vii. 315.
pole, position of southern, *J. C. Ross*, vii, 325, viii, 17.
needle, deflection of, by the act of volition, viii, 404.
cause of diurnal variations of, ix, 445.
influenced by rocks, iv, 198, vii, 315, 322.
relations of optic axes of crystals, viii, 430, x, 393.
Magnetic see *Diamagnetic*.
observations by *J. C. Ross*, in his Antarctic voyage. vii, 316, 317, 320, 321, 322, 329.
and meteorological observations made at Makerstoun, i, 138, iii, 115.
ibid, at Girard College, work on, noticed, vii, 455.
ibid. at Toronto, i, 137.
ibid, at Washington, i, 143.
and meteorological conference held at Cambridge, i, 142.
Magnetism, researches on the relations of, to light, i, 425.
influence of, on crystallization, *R. Hunt*, ii, 116.
terrestrial, *W. A. Norton*, iv, 1, 207, viii, 35, 216, 350 x, 330.
observations by *Graham, Locke* and *Lefroy*, in the United States and vicinity, iv, 192.
relations of heat and, *W. A. Norton*, iv, 1, 207.
heat produced by, *W. R. Grove*, viii, 266.
causing rotation of the plane of polarization of heat, ix, 344.
on the application of, as a motive power, x, 282, 343, and Appendix (*following this* Index).
Manual of, by *D. Davis*, noticed, viii, 308.
Magneto-optic properties of crystals, *Tyndall* and *Knoblauch*, x, 393.
Magneto-tangential machine, *O. N. Stoddard*, vii, 432.
Maine, minerals of, *C. T. Jackson*, i, 119.
axinite in, vii, 286.
Maize, *J. H. Salisbury*, viii, 307.
Malachite, huge Russian mass, ii, 120.
Malaguti, on silver, &c., in sea-water, ix, 421.

Malate of lime, preparation of succinic acid from, ix, 117.
Malay peninsula, geology of, vi, 129.
Mallet, R., on the vorticose movement said to accompany earthquakes, ii, 270.
Malone, T. A., photography on glass, x, 285.
Mammalia, see, *Zoology*.
Mammals and birds, a work on British fossils, by *R. Owen*, noticed, ii, 148.
low state of development of, in Australia and New Zealand, x, 124.
Mammifera, methodical distribution of, in a natural classification of animals, v, 428.
Mammoth, food, distribution, &c., of, *R. Owen*, iv, 13.
Man Primeval, work on, noticed, ix, 456.
Man, Report on races of, by *C. Pickering*, noticed, ix, 307.
on the increase of the nail and brain of, x, 129.
on the alledged coëxistence of, with megatherium, *C. Lyell*, iii, 267.
Manatus, species of, ix, 45, 47.
Manganese, test for, i, 262.
separation of cobalt from, ii, 260, iv, 271.
phosphates of, viii, 111.
Manganese spar, ix, 410.
Manganocalcite, a new mineral, v, 268
Manipulations in the Scientific Arts, notice of, ii, 148.
Manna, *J. Stettner*, vii, 112.
of Koordistan, and Mt. Sinai, iii, 350.
from a lichen, iii, 252.
Mannite, extraction of, by *Smith*, and analysis by *Stenhouse*, ix, 285.
atomic weight and compounds, x, 111.
Mansfield, C. B., liquid hydrocarbons for illumination, viii, 109.
on benzole, ix, 283.
Mantell, G. A., new works of, announced, i, 149.
notice of birds bones in Wealden, i, 274.
bones of Iguanodon, in the Isle of Wight, i, 275.
Thoughts on Animalcules by, noticed, ii, 149.
microscopic examination of chalk and flint, by, ii, 149.
soft bodies of foraminifera found fossil, ii, 275, v, 70.
geology of the Isle of Wight, iv, 230.
Wonders of Geology, noticed, v, 303, 447.
on the eggs of the Moa, v, 134.
on fossil birds of New Zealand, v, 431, vii, 28.
jaws and teeth of the Iguanodon, vi, 429.
memoir by, on Belemnites, noticed, vii, 150.
new discoveries of bones of Iguanodon, vii, 150, 138, 439.
on Dinornis, ix, 437.
structure of the Belemnite and Belemnoteuthis, ix 438.
on Pelorosaurus, ix, 147, 439.
Mantell, R. N., on the strata and organic remains in the Great Western railway cutting, ix, 436.
Mantell, W. B. D., fossil birds of New Zealand, ix, 147.
on remains of the Dinornis, ix, 437.
Manual of Road Making, *W. Gillespie*, iv, 148.
Manual of Botany, by *A. Gray*, noticed, v, 297, 377.
of Magnetism, &c., noticed, v, 150.
of British marine Algæ, by *W. H. Harvey*, viii, 453.
Manufacture of iron by blast furnaces, i, 170.
Maps of the U. S. coast survey, v, 315.
Marble, artificial, ii, 266.
Marcet, action of chloroform on sensitive plant, viii, 115.
Marchand, R. F., presence of carbonates in the blood, ii. 263.
products of the oxydation of gelatine by chromic acid, ii, 413.
on picric acid, viii, 108.
analysis of the waters of the Dead Sea, viii, 444.
Marchantia disjuncta, i, 74.
Margaric acid, composition of, viii, 270.
Margaritinic acid, *L. Säalmüller*, viii, 263.
Margarodite, ii 417, x, 115.
Margueritte, analyses of the tungstates by, i, 108.
Mariotte's law, interpretation of, *E. B. Hunt*, ix, 412.
Markoe, mineralogical cabinet of, vi, 297.
Marsh, D., on fossil footprints, vi, 272.
tenacity of life in black ants, vi, 292.
Marshall, memoirs of, viii, 456, ix, 85.
Marsileæ species of, iii, 55, 56, 451.
Martins, C., temperature of the sea near icebergs, vi, 143.
climate of France, x, 396.
Martinsite, a new mineral, *Karsten*, ii, 119.
Martius, Palmarum Genera et Species, noticed, i, 454, ii, 152.
Maryland, gold of, ix, 126.
coal fossils of, ii, 427.
Mason, E. P., notice of, by Herschel, v, 91.
Masonite, viii, 272.
Massachusetts, gold in, ii, 419.
trap tufa of, iv, 199.
otters in, vii, 117.
minerals of, vii, 411.
Mastodon, fossil of a young, i, 244.
of Newburg, N. Y., notice of a skeleton of, i, 268.
(the "Missourium,") figure and characters of, ii, 131.
food of, *A. Gray*, iii, 436.
giganteum, x, 57.
angustidens, ix, 304.
Mathematics, fundamental truths of, *S. Alexander*, vii, 178, 329.
Mathematical problems, *O. Root*, iii, 50.
Mather, W. W., on cupellation, iii, 409.
effects of the earth's contraction, iii, 100, 177, 183.
meteorology of Lake Superior, vi, 1.
disavowal of Foster's geological chart, ix, 444.
Matter, magnetic condition of, i, 421.
molecular constitution of, *J. D. Dana*, iv, 382.
Matteucci, on electro-physiology, iii, 111.
Lectures on living beings, v, 390.
magnetic conductility of the earth, x, 406.
Maumènè, test of the presence of sugar, x, 109.

Mauritius. Dodo and other animals of, vii, 52.
Maury, M. F., Astronomical Observations, noticed, iii, 150, 278.
winds and currents of the ocean, vi, 399.
circular relating to the Astronomical Expedition to Chili, noticed, viii, 303.
Notice to Mariners, 2d edition, noticed, x, 149.
Mechanics, on the relation of the laws of, to perpetual motion, x, 174.
Medal, Wollaston, given to W. Lonsdale, ii, 440.
astronomical, to Miss Mitchell, vii, 123.
Medicines adulterated, v, 139.
Mediterranean, temperature of, i, 133.
Medjidite, a new mineral, v, 336.
Meech, L. W., sun's intensity at the surface of the earth, x, 49.
Meerschaum of Asia Minor, *J. L. Smith*, vii, 285.
Megalonyx laqueatus, tooth of, x, 58.
ungueal phalanx of, x, 59.
Megatherium, on the alledged coexistence of man with, *C. Lyell*, iii, 267.
Melanolite, *H. Wurtz*, x, 80.
Melloni, researches on the radiations of incandescent bodies, and on the elementary colors of the spectrum, v, i.
heat in moon's rays, ii, 256.
Melonites multipora, *Norwood* and *Owen*, ii, 225.
G. Engelmann, iii, 124, 451.
Melsens, new process for extracting sugar from sugar cane, ix, 301.
on transparency of quicksilver, i, 117.
Melville on the Dodo, reviewed, vii, 52.
Memoir of D. Houghton, by *B. Hubbard*, v, 217.
of Walter Folger, ix, 313.
see *Obituary*.
Memorials of Bartram and Marshall, ix, 85.
Mendipite, analysis of, viii, 127.
Mercurial trough, *Louyet*, ii 265.
Mercury, protosalts of, how affected by the alkalies, i, 259.
new mode of estimating, *E. Millon*, ii, 258.
purification of, *Millon*, iii, 426.
congelation of, by virtue of the spheroidal state, iv, 101.
mines of, in California, vi, 270.
ores of, in coal formations, vi, 426.
in the Tyrol, viii, 275.
native antimonite of, viii, 127.
Meridian, measure of a degree of, in Finland, iii, 450.
Prime, American, *Davis*, viii, 394.
ibid, *J. Lovering*, ix, 184.
Mesitine, viii, 121.
Metal, new, pelopium and niobium, *H. Rose*, i, 103, iii, 357.
ruthenium, i, 103.
ilmenium, iii, 116.
Metals, laws of electric conduction in, i, 280.
silver, lead, and copper, in sea-water, ix, 421.
conducting power of, viii, 185.
Metallic lustre, cause of, iii, 264.
reflexion, *G. G. Stokes*, x, 391.
veins, superposition of minerals in, *W. J. Henwood*, iii, 269.
Metallurgical industry of Bohemia, vi, 146.
Metallurgy, ancient in Britain, viii, 96, 258.
Meteor appearances, Antarctic Ocean, *J. C. Ross*, vii, 320.
Meteors, see *Shooting Stars*.
Meteoric iron of Texas, *B. Silliman, Jr.*, ii, 370.
on three varieties of Tennessee and Kentucky, *G. Troost*, ii, 350.
of Lockport, *B. Silliman, Jr.*, ii, 374.
of Walker Co., Ala., iv, 74.
of Scriba, N. Y., iv, 75.
of Babb's Mill, Tenn., iv, 76.
of Burlington, N. Y., iv, 77.
of Hommoney Creek, N. C., iv, 79.
of Black Mountain, N. C., iv, 82.
of Cocke Co., Tenn., iv, 83.
of Randolph Co., N. C., iv, 85.
of Bedford Co., Penn, iv, 85.
of Otsego Co., N. Y., iv, 85.
of Franconia, N. H., iv, 87.
of Murfreesboro', Tenn., v, 351.
of Seeläsgen, in Brandenburg, vi, 426.
of Braunau, v, 285, 338, vi, 346, vii, 171.
of South Carolina, *C. U. Shepard*, vii, 449, x, 127.
of Zacatecas, x, 255.
Meteorites, fall of, in Iowa, iv, 288, 429.
of Concord, N. H., *B. Silliman, Jr.*, iv, 353.
of Richland, S. C., x, 127.
of Castine, Me., *C. U. Shepard*, vi, 251.
of Arkansas, v, 293, vi, 297.
of Juvenas, on Rammelsberg's analysis of, *C. U. Shepard*, vi, 346.
of Arva, viii, 439.
in North Carolina, ix, 143,
of Italy, iii, 141.
Meteorites of the Vienna Cabinet, i, 148.
report on, with accounts of several, *C. U. Shepard*, ii, 377, iv, 74, vi, 402, x, 127.
minerals of, ii, 377.
chemistry of, ii, 386.
physical characters of, ii, 390.
summary of American, 390.
Meteorological Journal, kept at Marietta, Ohio, i, 202 (1845), iii, 212 (1846), v, 250 (1847), vii, 240 (1848), ix, 264, (1849).
observatory on Mt. Vesuvius, i, 308.
observations in Western Asia, *A. Smith*, ii, 72.
at Natchez, *H. Tooley*, ii, 429.
at Sandwich Islands, *E. Johnson*, iii, 437.
at St Louis, *G. Engelmann*, iii, 438.
at Thibet, *Strachey*, x, 396.
Society in Finland, iii, 440.
instruments, photographic self-registering, iii, 428, ix, 319, 444.
phenomena telegraphically reported, v, 297.
Meteorology, *Arago* on predictions respecting the weather and the moon's influence, iii, 141.
of Lake Superior, *W. W. Mather*, vi, 1.

Meteorology, *Brocklesby's* Elements of, noticed, vi, 299.
Piddington's work on, vii, 144.
Redfield's labors in, vii, 145, 146.
J. P. Espy's, report on, i, 143.
introduction to, by *D. P. Thomson*, noticed, viii, 305.
W. Reid's new work on storms, noticed, viii, 455.
changes of wind, mean amount of clouds, mean temperature, &c., viii, 42, 218.
amount of dew, viii, 220.
Metis, on the planet, vi, 140, 278, 438.
Mexican fossils, found by *Claussen*, i, 122.
birds, notes on, *G. A. McCall*, vii, 114.
races and architecture, character of, ii, 6, 8, 10.
Mexico, notice of the soil, mines, &c., vi, 376, 427.
calendar stone of, *E. G. Squier*, vii, 153,
Mènè, E. H., preparation of hydrobromic and hydriodic acids ix, 421.
Miargyrite isomorphous with Augite, ix, 429.
Mialhé, digestion of amylaceous and saccharine substances, ii, 264.
on varieties of chloroform, ix, 115.
Mica in meteorites, *C. U. Shepard*, ii, 380.
analysis of, *Lohmeyer*, ii, 417.
hieroglyphical from the Indian mounds, iv, 145.
in Siberia, vi, 425.
originating from hornblende, vi, 425.
some species of, *B. Silliman, Jr.*, viii, 377.
phlogopite, analyses of, *J. Craw*, x, 383.
review of species of, *J. D. Dana*, x, 114.
Micas, optical examination of, *B. Silliman, Jr.*, x, 372.
diathermancy of, x, 373.
Michelotti, characteristic Rizopodi of the supracretaceous deposits, i, 149.
Michigan, copper region of, ii, 118, vii, 286, viii, 273, x, 65.
minerals of, ibid, vi, 269.
Micrometric measurements by the microscope, ix, 27.
Microscope, compound, by *C. A. Spencer*, v, 237, 285, 443. vii, 265, ix, 23.
Microscopic structure of shells, i, 283.
of anthracite coal, i, 407.
organisms, Barbadoes, iv, 416.
in Sirocco dust, iv, 423.
Middendorf, notice of, iii, 134. 450.
Migrations in the Pacific Ocean, i, 317.
Milk, fluorine in, x, 413.
of the Carnivora, i, 263.
of the milk tree, i, 429.
mode of preserving, *F. H. F. Louis*, vii, 431.
Miller, analysis of wrought iron, vii, 276.
Miller, W. H., and *J. Percy*, report on crystals in slags, v, 127.
Millon, E., determination of mercury, ii, 258.
on the decomposition of nitrite of ammonia, iv, 269.
on urea, vi, 256.
on analysis of inorganic matter in blood, and on metals in this fluid, vi, 422.
Minerals, American, *C. T. Jackson*, i, 119, ii, 118, vi, 188, ix, 422. x, 65, 78, 121.
T. S. Hunt, ii, 30, viii, 103.
J. E. Teschemacher, ii, 119.
Minerals, American, *C. U. Shepard*, ii, 119, 249, iv, 278, vi, 249, viii, 274.
J. L. LeConte, iii, 117, 173.
Connell, iii, 265.
B. Silliman, Jr., iii, 407, vi, 248, vii, 411, viii, 377, ix, 216, x, 117.
F. B. Hough, v, 132, ix, 287, 288, 424.
J. L. Smith, iv, 336.
J. D. Whitney, vi, 269, vii, 433, viii, 272.
C. Fisher, Jr., vii, 282.
W. Fisher, ix, 83.
J. D. Dana, ix, 286, 408, 430, x, 114, 119, 121, 414.
M. Hermann, x, 408.
R. Crossley, Jr., ix, 427, x, 77.
H. Wurtz, x, 80.
F. Alger, i, 121, x, 12, 101.
W. J. Craw, viii, 379, x, 117, 383.
G. J. Brush, viii, 390, x, 121, 370.
W. H. Brewer, x, 115.
J. D. Darrack, x, 115.
C. Hurtshorne, x, 117.
of Lake Superior, ii, 118, vi, 269, vii, 286. x, 65.
of Texas, Pa., *C. U. Shepard*, vi, 249.
ibid, *B. Silliman, Jr.*, iii, 107.
in New York, v, 132, ix, 288, 424.
of guano, *E. F. Teschmacher*. ii, 267.
of the Miask and Ural, *Murchison*, ii, 119, 120.
from the Azores, *J. E. Teschemacher*, iii, 32.
of meteorites, *C. U. Shepard*, ii, 377.
of granular limestone, origin of, *J. D. Dana*, ii, 88.
of the emery formation, *J. L. Smith*, ix, 289, x, 354.
investigated by, Hermann, ix, 408.
on the superposition of certain, in some metalliferous deposits in Cornwall in Devon, *W. J. Henwood*, iii, 269.
cause of irised colors of, vi, 254.
Blum on Pseudomorphism of, noticed, vi, 267.
and precious stones artificially produced, i, 430, ii. 411, v, 125, 127, vii, 427, viii, 421, ix, 120.
effects of fusion of, on specific gravity, v, 258, vi 133.
rocks, &c., decomposed by pure water charged with carbonic acid, v, 401.
cabinets of, for sale, i, 309, vii, 138.
Markoe's cabinet of. vi, 297.
MINERALS, NOTICES OF.
Acadiolite, i, 122; Acetate of lime, iv, 275; Allophane, vii, 416; Albite, viii, 389; Algerite, viii, 103 x, 177; Allanite, x, 251; Amoibite. ii, 416; Antimonite of mercury, viii, 127; Antimonate of lead, ii, 414; Anatase, ii, 416; Andalusite, ii, 119; Andesite, x, 254; Apatite, ii, 88; Apatoid, ii, 379; Aphanite, x, 254; Arkansite, ii, 249, vii, 433, viii, 274; Arragonite, ii, 417; Arsenical antimony, ii, 418; Axinite, ii, 123, vii, 286; Aspasiolite, iii, 429, v, 384; Atheriastite, x, 246; Aventurine, v, 412.

MINERALS, NOTICES OF.
Babingtonite, viii, 275; Baierine, viii, 274; Bagrationite, vi, 267, viii. 126; Barytocalcite, i, 121; Biotite, x, 116, 375; Bismuth silver, ii, 118; Bismuth, telluric, vii, 282, viii, 127, x, 78; Bismuthic gold, iv, 281; Bodenite, ii, 415, viii, 124; Boltonite, viii, 391; Boracite, amorphous, iv, 415; Brandisite, v, 267, vii, 113; Brookite, ii, 416, vii, 433, viii, 275; Brochantite, ii, 417; Brongniardite, x, 247; Bucholzite, ii, 418, viii, 387; Buratite, iii, 429.
Cacoxene, v, 421; Calamine, electric, manganesian, x, 249; Cale Spar, ii, 417; Cancrinite, i, 119, vii, 436; Carbonate of copper and zinc, vi, 426; Castor, iii, 430, x, 250; Catapleiite, x, 245; Ceramohalite, vii, 113; Cerusite, iii, 117; Chantonnite, ii, 381; Chiolite, iii, 267; Chladnite, ii, 381; Chlorastrolite, vi, 270; Chlorite, (mica?), x, 14, 351; Chloritoid, viii, 123, 272; Chlorophyllite, iii, 266; Chondrodite, ii, 88, ix, 84; Chrome ore, vii, 285; Chrysocolla, x, 73; Cinnabar, vi, 270; Clingmanite, viii, 383, x, 117; Cobalt, sulphuret, v, 268; Coal, vii, 304, 434, 437; Cobalt, oxyd of, iv, 281; Columbite, i, 267, v, 422; Copper, vii, 287, x, 65, 255; Copper, black oxyd of, ii, 118, viii, 273, x, 72; Copper blende, viii, 127; Copper, phosphates of, viii, 127; Copper, sulphato-chlorid of, iv, 415; Coraeite, iii, 117, vii, 434; Cordierite, v, 381; Corundellite, viii, 380, x, 117; Cryptolite, ii, 268; Cuban, i, 266; Cupreous sulphato-carbonate of lead, iii, 117; Cuprophumbite, ii, 414.
Damourite, i, 120, ii, 119; Danburite, ix, 286; Diallage, x, 253; Diamond, ii, 119, 253, vii, 243, viii, 290; Diaspore, i, 120; Digenite, ii, 414; Dillnite, x, 247; Diphanite, iv, 277, x, 119; Disterrite, viii, 123; Dolomite, x, 218; Dufrenoysite, v, 268; Dysclasite, i, 267; Dysluite, i, 121; Dyslytite, ii, 380.
Edelforsite, viii, 123; Ehlite, vii, 113; Electric calamine, x, 249; Emerald nickel, ii, 407, vi, 248; Emery, vii, 283, x, 354; Emerylite, vii, 285, viii, 378, x, 116; Elæolite, ii, 252; Enceladite, ii, 30; Epidote, viii, 123; Epistilbite, viii, 123; Eudnophite, x, 246; Eukolite, viii, 126; Euphotide, x, 252; Euphyllite, viii, 381, x, 117; Euxenite, viii, 126.
Feldspar, vii, 113, x, 252, 254; Fibrolite, viii, 388; Fischerite, ii, 415; Fluor spar, ii, 88; Fowlerite, x, 121; Fuchsite, x, 115.
Galena, vi, 271; Garnet, ix, 84; Geocronite, i, 267; Gibbsite, vii, 411, ix, 108; Gilbertite, x, 115; Gismondine, viii, 122; Glaucophane, viii, 123; Glinkite, viii, 121; Gold, ii, 120, 419, vi, 271, 275, vii, 125, 262, 291, 295, 305, viii, 128, 290, 415, 449, x, 255; Greensand, ix, 83; Groppite, iii, 429; Guanite, ii, 268; Gypsum, vi, 384, 389, 390.
Halloysite, v, 268; Harmotome, ii, 417, viii, 123; Hauyne, vii, 435; Hauerite, iv, 108; Hematite, ii, 268; Herschelite, iii, 429; Heulandite, viii, 122; Howardite, vi, 253, 405; Hornblende, x, 147, 253; Hudsonite, ix, 228; Humite, viii, 123; Hyalite, v, 412; Hydrophane, v, 412; Hydrosilicate, of alumina, viii, 122; Hypersthene, x, 147; Hyposclerite, x, 250.
MINERALS, NOTICES OF.
Iberite, i, 120; Idocrase, vi, 425, x, 251; Ilmenite, i, 122; Indianite, viii, 391; Iodolite, ii, 380; Iolite, ii, 418, iii, 266, v, 381.
Jacksonite (anhydrous prehnite), vi, 269, x, 121; Jade, ii, 267.
Keilhauite, ii, 415; Kaliphite, ii, 416; Kraurite, v, 421; Krisuvigite, ii, 417; Kyrosite, i, 266.
Lancasterite, ix, 216; Lardite, viii, 121; Lapis Lazuli, vi, 425; Lead, native, i, 120; Lepidolite, x, 116; Lepolite, ix, 411; Levyne, ii, 417; Liebnerite, vi, 275; Liebigite, v, 337; Lindsayite, ix, 411; Loxoclase, ii, 414.
Malachite, ii. 120; Manganese spar, ix, 410; Manganocalcite, v, 268; Margarodite, ii, 417, x, 115; Martinsite, ii, 119; Masonite, viii, 272; Medjidite, v, 336; Meerschaum, vii, 285; Melanolite, x, 80; Mendipite, viii, 127; Mercury, viii, 275; Mesitine, viii, 121; Mica, ii, 117, vi, 425, viii, 378, x, 114; Molybdenite, vi, 425; Monazite, viii, 275; Monazitoid, viii, 125; Monrolite, viii, 385; Mowenite, ii, 417; Muramonite, viii, 125; Muscovite, x, 114, 372.
Native tin, ii, 415; Native titanium, ii, 414; Natrolite, ii, 418; Nemalite, iii, 265, vii, 434; Neolite, viii, 121; Nepheline, i, 119; Nickel ores, ii, 266, viii, 128, ix, 287; Niobite, viii, 126; Nontronite, x, 249; Noscan, vii, 435; Nuttallite, viii, 394.
Orpiment, iii, 353; Osmelite, viii, 123; Ozarkite, ii, 251, vii, 434, ix, 430.
Parisite, ii, 415; Pectolite, vii, 434, viii, 123; Pennite, iii, 408, 409, vi, 259, ix, 217; Petalite, x, 250; Perowskite, i, 120, ii, 417; Phacolite, i, 121, ii, 417; Phillipsite, viii, 122; Phlogopite, x, 116, 374, 383; Phyllite, ii, 422, Pinazite, i, 267; Pinite, identical with Iolite, ii, 418, iii, 266; Pistomesite, viii, 121; Pitchblende, viii, 126; Platinum, ii, 121, iv, 280, vii, 137, viii, 294, x, 121; Plininn, viii, 127; Plumbo-resinite, iii, 117; Plumbic ochre, viii, 420; Pollux, iii, 430; Prehnite, x, 68; Prehnite, anhydrous, vi, 269, x, 121; Pyrophyllite, viii, 122, 274, x, 249; Pyrrhite, ix, 423.
Randanite, viii, 120; Red zinc ore, ix, 424; Rhodonite, ix, 410; Rutile, ii, 416, viii, 274, x, 12, 350.
Samarskite, v, 422, vi, 266; Saccharite, ii, 415; Schorlomite, ii, 251, vii, 433, ix, 429; Schreibersite, ii, 383, viii, 140; Scolezite, ii, 418; Serpentine, x, 253; Shepardite, viii, 440; Sillimanite, ii, 418, viii, 386; Silver, native, vii, 287, 305, x, 69; Sinelite, v, 268; Sodalite, vii, 435, x, 250; Spathic iron, x, 248; Specular iron, ii, 411; Sphene, ix, 430; Sphenomite, ii, 380; Spodumene, x, 119, 264, 370; Stiblite, v, 268; Staurotide, ii, 418, x, 121, 414; Stroganowite, ii, 413; Struvite, ii, 268; Stannine, viii, 127; Steatite, viii, 122; Stercorite, viii, 129; Stellite, vii, 434; Stilbite, x, 249; Sulphato-chlorid of copper, iv, 415; Sulphur, iii, 353.
Talc, viii, 132, x, 253; Tautolite, iv, 278; Telluric Bismuth (Tetradymite), vii, 282, viii, 127, x, 79; Thjorsauite, vii, 114; Thulite, x, 251; Tin, viii, 291; Topaz, i, 121; v, 420, viii, 275; Tritomite, x, 245; Troostite, ix, 409; Turgite, ii, 415; Turquois, i, 266, ii, 415.

Minerals, notices of.
Unionite, viii, 384; Uranotantalite, v, 422; Uralorthite, viii, 125.
Vanadate of copper, ii, 414; Vermiculite, ix, 422; Vivianite, ix, 84; Volknerite, vii, 113, viii, 122; Vosgite, vii, 113.
Washingtonite, i, 122; Wavellite, viii, 275; Willemite, ix, 408; Williamsite, vi, 249; Wolfram, i, 267, x, 254.
Xylite, ii, 413.
Yttro-cerite, i, 121; Yttro-tantalite, viii, 126.
Zeolite, red, x, 250; Zircon, i, 119, v, 132; Zygadite, viii, 124.
Mineral lands of the United States, notice of *Owen's* Report on, ii, 294.
lands of Lake Superior, report on, by *A. B. Gray*, noticed, v, 151.
constitution of igneous rocks, origin of, *J. D. Dana*, ii, 348.
species, on a peculiar kind of isomorphism in, v, 381, vi, 57.
on heteronomic isomorphism, *J. D. Dana*, ix, 220, 407, 429, x, 119, 121.
waters, determination of bromine in, *Heine*, ii, 113.
arsenic in, iii, 260, vi, 422.
metals found in, v, 120.
of the Rocky and California Mountains, vi, 389, 390.
Mineralogical cabinet at Baltimore for sale, vi, 447.
Society at St. Petersburg, transactions of, vii, 457.
Mineralogy, *Dana's* Manual of, noticed, vi, 302.
Dana's System of, 3d edition, noticed, x, 138.
of *J. Nicol*, noticed, viii, 159.
Mines, air of, i, 118.
of Koordistan, iii, 353.
and mining industry of Belgium, iii, 293.
of New Mexico, vi, 383.
tin, of Banka, vii, 86.
in Australia, ii, 291, iii, 143, iv, 255, vi, 134, vii, 138, viii, 290.
Minhoçao, iv, 130.
Mining, employment of gun-cotton in, iv, 139, vi, 256.
ancient, in Britain, viii, 96, 258.
Miocene shells found living in the United States, i, 404.
Mississippi, tertiary of, *T. A. Conrad*, ii, 124, 210.
cypress timber of, v, 15.
delta, amount of detritus and alluvium of, *C. Lyell*, iii, 34, 118.
geology in the state of, x, 133.
Missouri, fossil echinoderm of, ii, 225.
minerals of, iii, 117.
on the limestone of St. Louis, *G. Engelmann*, iii, 119.
and Mississippi valleys, map of, and report on, i, 270.
St. Louis, rain and snow of, *G. Engelmann*, iii, 438.
Missourium identical with the Mastodon, ii, 131.
sum paid for, to Mr. Koch, ii, 132.
Mitchel, O. M., astronomical observatory in Cincinnati, i, 297.
discoveries with the refractor, at Cincinnati, i, 315.
Mitchell, Maria, comet medal to, vii, 123.
Mitchell, W., comet of October 1st, 1847, discovered by Maria Mitchell, v. 83, 135.
memoir of Walter Folger, ix, 313.
Moa, eggs of, from New Zealand, v, 134.
see farther, *Dinornis* or *New Zealand*.
Mohr, Pharmacy of, noticed, viii, 150.
Molecules, *J. D. Whelpley* on the nature of, ii, 401.
forms and polarity of, iv, 366.
polarization dependent on form, and attraction subject to modifications, *J. D. Dana*, iv, 371, 372.
attraction of, intermittent in action producing cleavage, *J. D. Dana*, iv, 378.
Molecular phenomena of the voltaic arc, iii, 110.
Mollusca, olfactory sense in, *J. Leidy*, iii, 434.
on the boring of, *A. Hancock*, vii, 288.
see farther, *Zoology*.
Molybdenite at Sanford, Me., vi, 425.
Molybdenum, atomic weight of, x, 264.
Molyneux, on the Dead Sea, vi, 146.
Monazite in North Carolina, viii, 275.
Monazitoid, a new mineral, viii, 125.
Monheim, K., Dolomite from the zinc veins of Altenberg, near Aix la Chapelle, x, 248.
analysis of green spathic iron from near the zinc mines of Altenberg, x, 248.
analyses of electric and manganesian calamine from Altenberg, x, 249.
Monrolite, a new mineral, viii, 385.
Monthly Miscellany and Journal of Health, noticed, ii, 148.
Monticelli, T., obituary of, iii, 143.
Monument to Columbus, iii, 142.
to Thomas Say, iii, 298.
Moon, variation of, i, 389.
rays of, calorific, *Melloni*, ii, 256.
volcanoes of, *J. D. Dana*, ii, 335.
W. Herschel, ii, 336, 341.
Rozet's views on, ii, 344.
Nasmyth's views on, ii, 344.
atmosphere of, ii, 335, 432.
Beer and *Mädler's* work on, ii, 335.
twilight of, ii, 432.
influence of diffraction on a star eclipsed by, ii, 433.
influence of, on the weather, *Arago*, iii, 141.
projection of a star on, *Powell*, iii, 277.
observations during eclipse of Sept., 1848, *S. M. Rutherford*, vi, 435.
model of the surface, ix, 143.
Moose, American, a new species, iii, 436.
Mordecai, experiments by, on gunpowder, noticed, viii, 309.
Moricand, Plantes Nouvelles, &c., of, noticed, iii, 147.
Morlot, A. von, on dolomization, vi, 268.
Morris, J. G., history of entomology in the United States, i, 17.
Morse's telegraph, v, 55, 154.
Mortality of children, iii, 297.
Morton, S. G., ethnography and archæology of the American Aborigines, ii, 1.
fossil echinodermata of the eocene, ii, 273.
considerations bearing on the question of the unity of the human species, iii. 39, 203.
on a new Hippopotamus, viii, 152.
measurements of human crania, ix, 40.
size of human brain, ix, 246.
Mosses, new American, *W. S. Sullivant*, i, 70.
M. A. Curtis, vi, 349.

Motion, laws of, influencing the expansion of elastic fluids, ix, 334.
perpetual, on the relation of the laws of mechanics to, *J. Day*, x, 174.
Motive power, chloroform used for, vii, 304.
of water in the spheroidal state, vii, 304.
galvanic, x, 282, 343, and Appendix (following this Index).
Mounds and relics of American races, *E. G. Squier*, ii, 284, iii, 237, viii, 1.
Mount Ararat, *Abich's* excursion to, ii, 291.
Mountain, falling in of, at Timor, v, 423.
Mountains, on the elevation of, *J. D. Dana*, ii, 353, 355, iii, 96, 98, 176, 390.
ibid. *C. Prévost*, ii, 355.
characters of ranges of, *J.D.Dana*, iii,385.
objections to E. de Beaumont's theory of, iii, 384, 390.
Rocky, iii, 98, 192, 273, 301, 319 vi, 376, vii, 376.
Cascade, of Oregon and California,iii,200.
of Western America, their parallelism, &c., vii, 380.
Wind river, *J. C. Fremont*, iii, 193.
Altai, trend of, iii, 383.
Ural, geology of, iii, 158.
of Madeira, height of, vii, 314.
Antarctic, vii, 325.
peaks of Himalaya and Andes, viii, 133.
Mowenite identical with Harmotome, ii, 417.
Mud of the Nile, viii, 275.
Mulder, changes in albuminous substances during digestion, iv, 402.
Müller, J., on the Zeuglodon, iv, 421.
Principles of physics, by, noticed, v, 302.
Munster's collection of fossils sold to Bavaria, i, 452.
Muramontite, a new mineral, viii, 125.
Murchison, R. I., Russia and the Ural Mountains, i, 149
knighthood bestowed on, by Queen Victoria, i, 452.
palæozoic deposits of Scandinavia, i, 271.
occurrence of diamonds, gold, platina and other minerals in the Urals, ii, 119, 120.
Geology of Russia by, noticed, iii, 153.
on silurian classification, iii, 404.
Musci Alleghanienses, *Sullivant's*, noticed, i, 70.
Muscles in the glass snake, *W. M. Carpenter*, ii, 89.
Muscovite, x, 114.
Museum of Economic Geology, Great Britain, ii, 411, vi, 446.
of Natural History at Paris, ii, 291.
Muscular pile, *Matteucci*, v, 391.
Muscular contraction, development of electricity by, viii, 404, 405, ix, 304.
Musical intonation, perfect, ix, 68, 199.
Mustard, relations of the oil of, ii, 409.
Mycology, contributions to American, *Curtis* and *Berkeley*, vi, 349, 441, viii, 401, ix, 171, x, 185.

N.

Nail of man, on the increase of, x, 129.
Napier's patent for smelting copper, &c., v, 260.
Naphtha of Alfreton, England, vii, 305.
Nasmyth, J., new property of coke, vi, 424.
Nasmyth, J., slow transmission of heat through clay and sand, vi, 119.
on lead statuary, x, 286.
on the moon, noticed, ii, 336, 339.
Natchez, human bone from bluff at, iii, 267.
bluff formation, v, 249.
National Institute of France, x, 316.
Native tin, ii, 415.
titanium, ii, 414.
Natrolite, ii, 418.
Natural History Society of Concord, ii, 144.
ibid. of Boston, see *Boston*.
Natural Philosophy for Schools by *H. L. Smith*, noticed, iv, 302.
Gray's Elements of, noticed, ix, 308.
Naturalist, a journal published in Tennessee, ii, 147.
Nautical Almanac, remarks on an American, vii, 123.
Navicula Spencerii, v, 443, vii, 265, ix, 23.
Nebula in Orion resolved by the Cambridge refractor, iv, 426.
Nebulæ observed with Rosse's telescope, ix, 140.
Necker, on parallelism in the strike of strata, iii, 393.
Negro races of Oriental Africa, x, 276.
Ne-hoo-le or Manatus nasutus, ix, 45.
Nemalite, iii, 265 vii, 434.
Neolite, a new mineral, viii, 123.
Neo-macropia, *C. Dewey*, viii, 443.
Nepenthes, composition of the fluid in the ascidia of, ix, 419.
Neptune, new planet, ii, 439, iii, 128, 441.
B. Peirce on, iii, 441, iv, 132, v, 436.
S. C. Walker on, iii, 441, iv, 133, v, 153, vi, 277, 396.
identity of, with a star seen by Lalande, *S. C. Walker*, iv, 133.
supposed ring and satellite of, iv, 287, v, 135, 282.
discovery of, historically considered, *E. Loomis*, v, 187.
Bobinet on, vi, 438.
Le Verrier on, vi, 439, vii, 118, 442.
Neptunian theory of Uranus, researches on, *E. F. Burr*, vi, 236.
Nereis Australis, work by *W. H. Harvey*, noticed, viii, 453.
Nettles, on the occurrence of formic acid in stinging, x, 108.
New Hampshire, age of White Mountains, i, 411, v, 116.
trap dikes of, evidence of erosion, *O. P. Hubbard*, ix, 158.
New York Scientific Reports, notice of, i, 310.
Geological Reports, review of, i, 43, iii, 57, 164.
minerals of, i, 121, iii, 117, v, 132, ix, 287, 288, 424.
mastodon of, i, 268.
acid springs of, vii, 175, ix, 449.
Report of Regents of University of, vi, 298.
Newfoundland, gradual rise of, i, 434.
New Holland, geology of, i, 278.
on denudation in, ix, 289.
fossils of, *J. D. Dana*, iv, 151, v, 433, 434.
New South Wales, see *New Holland*.

New Zealand, fossil birds in, i, 129, v, 134, 431, vii, 28, 151, ix, 437.
Niagara whirlpool and rapids, *R. Bakewell*, iv, 25.
Nickel, extraction of, at Birmingham, viii, 112.
Emerald, *B. Silliman, Jr.*, iii, 407, vi, 248.
arsenical, of Oelsnitz, viii, 128.
arsenio-sulphuret of, viii, 128.
sulphuret of, in Northern New York, ix, 287.
and cobalt, new method of separating, v, 411.
Nickles, J., dimorphism of zinc, vi, 255.
crystallized hydrated oxyd of zinc, vi, 257.
Nicol, J., Mineralogy of, noticed, viii, 159.
Nicollet, I. N., notice of map of the Missouri and Mississippi valleys by, i, 270.
Nicotine, mode of determining the amount of, in tobacco, iv, 272, v, 413.
Niepce, mode of copying engravings, viii, 293.
Nightwick, G., Hints to Young Architects by, noticed, iv, 302.
Nile, mud of, viii, 275.
remarks on the river, *C. T. Beke*, iii, 447.
exploration of, by Dr. Bialloblotzky, vii, 138.
Nineveh, ruins of, noticed by *A. Smith*, v, 141, 297.
ruins of, ix, 447.
Niobite, viii, 126.
Niobium, *H. Rose* on, iii, 357.
Nitrates, mode of estimating, *J. Pelouze*, iv, 270.
Nitrates of iron, &c., *J. M. Ordway*, ix, 30.
basic of iron, ix, 32.
Nitric acetene, action of sulphuretted hydrogen on, *T. S. Hunt*, iv, 350.
Nitric acid, detonating compounds formed by, with sugar, dextrine, &c., *A. Sobrero*, iv, 274.
action of, on sebacic acid, *A. Schlieper*, vii, 420.
anhydrous, viii, 270.
Nitrification, *Dumas*, iii, 261.
of soils, *F. Kuhlmann*, iv, 107.
Nitrogen, preparation of, ix, 114.
nourishing quality of vegetables from the amount of present, ii, 264, x, 403.
determination of, x, 259.
in organic bodies, determination of, iii, 424.
Varrentrapp and Will's method for the determination of, *E. N. Horsford*, iv, 267.
ibid. *Peligot*, iv, 269.
anomaly in atomic volume of, *T. S. Hunt*, vi, 170.
liquid protoxyd of, viii, 113.
not a constituent of picrotoxine, iii, 424.
and phosphorus, compounds of, iii, 105.
phosphuret, preparation of, *Balmain*, ii, 262.
Nitrous acid, decomposition of aniline by, viii, 372.
Noad on Chemical analysis, noticed, viii, 151.
Nobert's micrometer, ix, 27.
Noble, D., the brain and its physiology, ii, 446.
Noctiluca, remarks on the genus, *J. D. Dana*, x, 122.
Noellner, on the determination of nitrogen, x, 259.
Nöggerathia, relations of living plants to, ii, 279.
Nomenclator Zoologicus of *Agassiz*, and Laws of Nomenclature, *A. Gray*, iii, 302.
Nomenclature, Scientific Report on, ii, 423.
Nontronite from Andreasberg, x, 249.
North Carolina, platinum in, iv, 280.
diamonds in, ii, 119, 253.
North pole, mode of reaching proposed, iii, 111.
Northers or gales, of Mexico and the United States, *W. C. Redfield*, i, 16, 153.
identity of, with the common storms of the United States, i, 163, 165, ii, 322.
Norton, J. P., prize of Highland Society awarded to, i, 309.
on the potato disease, ii, 281, iv, 70.
analysis of the oat, iii, 145, 222, 318.
a Professor in Yale, iii, 451.
on the proteine bodies of peas and almonds, &c., v, 22.
work by, on the Elements of Scientific Agriculture, noticed, x, 146.
Norton, W. A., on terrestrial magnetism, iv, 1, 207.
diurnal variations in the declination of the magnetic needle and in the intensity of the horizontal and vertical magnetic earth's forces, viii, 35, 216, 350.
diurnal and annual variations of the magnetic forces, x, 330.
Norway, native silver of, vii, 305.
Norwood, J. G., on a fossil fish, i, 367.
fossil echinoderm from St. Louis, ii, 225.
protozoic and carboniferous rocks of Kentucky, v, 268.
report on the geology of Wisconsin, ix, 306.
Nosean, vii, 435.
Notation, chemical, of Gerhardt and Laurent, ix, 364.
Notothylas, a new genus of mosses, with descriptions of species, i, 74.
Nucula, new species of, v, 432.
Numbers, theory of, *J. B. Luce*, viii, 55.
Nummulina, structure of, x, 275.
Nummulites, tertiary, Tampa Bay, ii, 399.
of Alabama, *C. Lyell*, vii, 114.
Nummulite limestone of Alabama, *C. Lyell*, iv, 186.
Nummulitic formation of the Alps, age of, x, 265.
Nut, fossil, in the eocene, ix, 127.
Nutrition of animals, influence of ammonia on, iv, 273.
Nutritive quality of vegetables reckoned from the nitrogen present, ii, 264, x, 403.
power of green and dry fodder, *Boussingault*, iii, 106.
Nuttallite, analysis of, viii, 394.

O.

Oak Orchard spring water, analysis of, ix, 449.
Oakes, W., obituary of, vii, 138.
herbarium of, viii, 293.
Oats, *J. P. Norton* on, iii, 145, 222, 318.
researches on proteine compound contained in, v, 22.
analysis of the ash of, ix, 20.
Obituary of *Aimé*, iii, 143.
Benzenberg, ii, 297.
Berzelius, vi, 448.
Bessel, F. W., ii, 145.

Obituary of *Binney, A.*, iii, 451.
Blainville, Ducrotay de, x, 138, 296.
Bonpland, ii, 297.
Brongniart, Alexander, v, 141.
Cassini, J. D., ii, 145.
Christian VIII, x, 297.
Crawe, Ithanar B., iv, 300.
Daniell, J. F., ii, 145.
Döbereiner, J. W., viii, 450.
Ducatel, J. F., viii, 146.
Eld, Henry, Jr., x, 137.
Erickson, W. F., viii, 450.
Foster, E., vii, 451.
Fownes, G., vii, 452.
GayLussac, x, 137.
Gay, Martin, ix, 305.
Gilmore, R., vii, 142.
Goldfuss, A., vii, 143.
Guthrie, S., vii, 143.
Heberden, W., ii, 145.
Hell, Hommaire de, vii, 451.
Horton, Dr. Wm., i, 152.
Houghton, Dr., i, 150. v, 217.
Jones, T. P., v, 443.
Kent, James, v, 144.
Kunth, x, 138.
Lapham, Daniel, x, 298.
Lesueur, C. A., viii, 189.
Louyet, P. (misprinted *Souyet*), x, 138.
Lukens, Isaiah, iii, 144.
Monticelli, T., iii, 143.
Oakes, Wm., vii, 138.
Olmsted, D., Jr., ii. 297.
Pickering, J., ii, 144, iii, 452.
Pitkin, Timothy, v, 144.
Prichard, Dr., vii, 452.
Prout, x, 138.
Richardson, J., vi, 297.
Saussure, T. de, ii, 145.
Seebeck, L. F. W. A., viii, 450.
Troost, Gerard, x, 298.
Vanuxem, L., v, 445.
Vincent, Bory de St., iii, 452.
Whistler, G. W., viii, 294.
Woodbridge, W. C., i, 152.
Observations meteorologiques faites à Arkangel, i, 140.
Observatory, magnetical and meteorological, Toronto, i, 137.
ibid. at Makerstoun, Scotland, i, 138.
astronomical, at Cincinnati, i, 297.
at Washington, i, 294.
ibid. observations at, *M. F. Maury*, iii, 150, 278.
ibid. *J. M. Gilliss*, iii, 149.
Obsidian in California, vii, 250.
Oceanic migrations, map of, i, 317.
currents around Cape Horn, vii, 316.
Ocean, origin of depressions of, ii, 353, iii, 94, 178, 181, 398.
depth and saltness of, *C. Wilkes*, v, 41.
Antarctic, explorations in, i, 307, v, 287, x, 287.
ibid. *J. C. Ross*, vii, 313, viii, 14.
Diatomaceous vegetation of, *J. Hooker*, iv, 424.
Atlantic, and others, facts concerning, vi, 399.
Pacific, why surrounded by higher mountains than the Atlantic, and by a volcanic band, iii, 185, 398, iv, 92.
Ocean, Pacific, number of islands lost to, by subsidence, *J. D. Dana*, iii, 94.
Œrsted, H. C., experiments on diamagnetism, vii, 233.
Ohio, drift and alluvium of, *C. Whittlesey*, v, 205.
fossils of, i, 441.
Fusulina in coal formation of, ii, 293.
Oil of garlic, ii, 410.
of mustard, relations of, ii, 409.
of Ben, fat acids of, iv, 271.
olive, mode of detecting adulterations of, iv, 272.
of Monarda, iii, 425.
Oils, volatile, of the Cruciferæ, iii, 425.
drying, caoutchoue from, iii, 426.
Oithona plumifera, *Baird*, x, 123.
Olmsted, D., review of Herschel's Cape of Good Hope observations, v, 86.
Olmsted, D., Jr., obituary notice of, ii, 297.
Oolite of Rocky Mountains, iii, 197.
Ophisaurus, muscles in, *W. M. Carpenter*, ii, 89.
Optics, facts relating to single and double vision, *J. Locke*, vii, 68.
ibid. *S. P. Lathrop*, vii, 313.
see farther, *Light*.
Orang-otang, daguerreotype of, vii, 303.
new, v, 106, viii, 141, ix, 34.
Orbigny, A. d', works of, noticed, ii, 299, iv, 452.
on the Orbitolina, iv, 282.
Orchestidæ, *J. D. Dana* on, ix, 295.
Ord, G., memoir of Lesueur, viii, 189.
Orduay, J. M., on nitrates of iron, &c., ix, 30.
Ores, see *Minerals*.
Oregon, remarks on, iii, 192, vi, 280.
on some points in the physical geography of, *J. D. Dana*, vii, 376.
fossils of, *T. A. Conrad*, v, 432.
reptiles from, vii, 202.
Organ of sound in Lepidoptera, v, 435.
Organ for perfect musical intonation, ix, 68, 199.
Organic remains, see *Fossil*.
substances, connection between boiling points and constitution of, i, 115.
sum of atoms of, divisible by four, i, 118.
action of perchlorid of phosphorus on, iii, 256.
determination of nitrogen in, iii, 424.
Chemistry, review of Gerhardt's, *T. S. Hunt*, iv, 93, 171.
homology and analogy in, iv, 96.
bases, production of, ix, 420.
Orion, nebula in, resolved by the Cambridge Refractor, iv, 427.
Orkney, formation of cylindrical masses of snow in, iv, 292.
Ornithichnites, see *Footprints*.
Ornithology, see *Zoology*.
Orpiment mine, Koordistan, iii, 353.
Orpheus carvirostris, vii, 114.
Orthoceras, impression of soft parts of, vi, 132.
Orthography in chemistry, v, 437.
Osars, of Scandinavia, iii, 313.
Osmelite and pectolite identical, viii, 123.

Osmium, how obtained, by *R. Hare*, ii, 369.
Osmiuret of iridium, fusion of, ii, 369.
Otozoum, iv, 54.
Otters in Hadley, Mass., vii, 117.
Oust-Urt, and shores of Lake Aral, i, 123.
Outlines of qualitative analysis, by *Will*, iv, 455.
Owen, D. D., review of the New York geological reports, i, 48, iii, 57, 164.
on a new *fossil fish*, i, 367.
fossil echinoderm from St. Louis, ii, 225.
notice of report by, on the mineral lands of the United States, ii, 294.
review of Geology of Russia, iii, 153.
limits of palæozoic period, iii, 365.
on the protozoic and carboniferous rocks of Kentucky, v, 268.
Geological Report of, on the Chippewa Land District, reviewed, ix, 306, x, 1.
Owen, R., on extinct mammals of Australia, i, 129.
on the Belemnite, i, 285.
Fossil mammals and birds by, noticed, ii, 148.
on the vertebrate structure of the skull, iii, 122.
on homology, iii, 339.
on the mammoth, iv, 13.
on the fundamental type and homologies of the vertebrate skeleton, iv, 23.
on the Dinornis, i, 129, vii, 151.
on the nature of limbs, viii, 152.
British Fossil Mammals by, noticed, ix, 149.
Oyster-catcher, American and European, different species, vi, 433.
Oysters not hermaphrodite, vii, 437.
Ox, fossil, from Texas, i, 245.
Oxgall, v, 417.
Oxley, T., on the gutta percha, v, 438.
Oxydation by means of cyanogen, i, 259.
Oxygen, solution of, in fused litharge, iii, 255.
from chlorate of potash, ix, 419.
Ozarkite, a new mineral, *C. U. Shepard*, ii, 251.
observations on, vii, 431, ix, 430.
Ozone, history and nature of, *T. S. Hunt*, ii, 103.
remarks on, *J. Berzelius*, iv, 265.
properties of, *C. F. Schönbein*, iv, 320.

P.

Pachygrapsus parallelus, x, 122.
Pacific Ocean, population of, i, 318.
dialects of, i, 319.
ranges of islands in, *J. D. Dana*, iii, 393.
number of islands lost by subsidence, *J. D. Dana*, iii, 94.
almost encircled by a volcanic band, iii, 398.
denundation in, ix, 48.
Page, C. G., notice of a remarkable paraselene, i, 136.
axial galvanometer, i, 242.
law of electric induction, ii, 202.
probable conduction of galvanic electricity through moist air, ii, 204.
on electric conduction, ii, 406.
Page, C. G., revolution of a magnet without visible support, iii, 252.
singular property of caoutchouc, iv, 341.
polarization of galvanic light, vii, 375.
on galvanic light, viii, 146.
on Trevelyan's bars vibrating by galvanism, ix, 105.
on electro-magnetism as a moving power, x, 343, and Appendix (following this Index).
singular character of the secondary spark, x, 349.
Pagurus, on a species of, x, 122.
Pain in animals, *G. R. Rowell*, vi, 89.
Paine, R. T., on the eclipse of the sun, April, 1846, i, 289.
Palæontographical Society of London, iv, 299.
Palæontology of South America, i, 279.
of New York, work on, by *J. Hall*, iii, 454, v, 149.
ibid. deductions from, by *J. Hall*, v, 243.
Paléontologie Universelle des Coquilles, i, 309.
Palæotherium from St. Louis, ii, 288, iii, 248.
Palæozoic deposits of Scandinavia, i, 271.
deposits of North America, v, 176, 359.
table of, v, 183.
rocks of America and Europe, parallelism of, *Ed. de Verneuil*, vii, 45, 218.
period, limits of, *D. D. Owen*, iii, 365.
Palapteryx, a genus of fossil birds, v, 431.
Palms, distribution of, in the geological formations, *Unger*, ii, 133.
notice of, *Martius*, on. ii, 152.
House at Kew, on glazing, iv, 431.
Palmer, A. H., Memoir on Eastern Countries, noticed, vii, 148.
Panama, geology of, *E. Hopkins*, vi, 123.
Pancreatic secretions, vi, 276, viii, 140.
Paper, photogenic, new, i, 301.
electric excitement of, i, 427.
from the banana, ii, 284.
explosive, iii, 142.
Parabolas, foci of, i, 200.
Parallax of a fixed star in Ursa Major, iii, 444.
Parallels, doctrine of, i, 89, 147, ii, 69.
Paraselene, on a remarkable, i, 136.
Paris, museum of natural history of, ii, 291.
Academy of Sciences, vacancies in, filled, iii, 451.
remarks on, *D. Brewster*, x, 316.
Parisite, a new mineral, ii, 415.
Partsch, work on meteorites by, noticed, i, 118.
Pastures, fairy rings of, iii, 294.
Patent Office Report, vi, 303, viii, 456.
Paving material of India rubber called kumpolite, vi, 446.
Payen, on coffee and caffeine, iii, 106, 423.
on the potato disease, i, 132.
Peabody, J., analysis of the glassy scoria of Kilauea, ii, 273.
Pearce, J. C., notice of supposed embryo of Ichthyosaurus, i, 276.
Peas and almonds, proteine bodies of, v, 22.
Pectolite, vii, 434.
identical with osmelite, viii, 123.
Peirce, B., orbit for Bond's comet, i, 448.
on the planet Neptune, iii, 441, iv, 132.

Peirce, B., calculations on the perturbations of Uranus, v, 436.
Peligot, E., new chlorid and oxyd of chromium, i, 102.
new saccharimetric process, iii, 109.
method of determining nitrogen, iv, 269.
Pelopium, *H. Rose* on, iii, 357.
Pelorosaurus, ix, 439.
Pelouze, new mode of estimating copper, ii, 259.
mode of estimating nitrates, iv, 270.
Pendulum experiments by Bessell, iv, 314.
Penguins in Crozet group, vii, 317.
Pennite, a new mineral, iii, 408, 409, vi, 250, ix, 217.
Pennsylvania and Ohio, topography of, with reference to railroads, *S. W. Roberts*, vi, 397.
Pennsylvania, footprints in, i, 268, ii, 25, ix, 124.
minerals of, iii, 407, vi, 248, 249, ix, 216.
Percival, J. G., hematite in Connecticut, ii, 268.
trap dikes of Connecticut, iii, 390.
Percopsis, a new genus of fishes, x, 125.
Percy on crystalline slags, v, 127.
on alloys of tungsten, vii, 276.
Perkins, G. A., on Engé-ena, ix, 45.
Permian System, iii, 155.
relations of, iii, 365.
Perowskite, i, 120, ii, 417.
Persia, height of Lake Oroomiah, above the sea, iii, 317.
Person, C. C., latent and specific heat of bodies, vi, 111.
relation between elasticity of metals and latent heat, vii, 128.
Peruvian bark, collection of, v, 291.
Petalite, identity of Castor with, x, 250.
Peter, R., Memoir by, on urinary calculi, noticed, iii, 299.
Petersen, comet of, vi, 437, vii, 122.
Petrie, W., on making magnets, iii, 112.
phosphorescence of potassium, x, 413
Petrified forest near Cairo, i, 433.
wood in Texas, ii, 124.
Petschora-Land, geology of, noticed, iv, 419.
Peysonel's views and memoir on zoophytes, alluded to, ii, 65.
Pettenkofer, new test for bile and sugar, i, 105
sulpho-cyanogen in human saliva, ii, 263.
on a copper amalgam, ix, 282.
Phacolite, i, 121, ii, 417.
Phantascope, *Locke's*, ix, 153.
Phares, D. D., beavers in Mississippi, vi, 297.
Pharmacy, work on, by *Mohr*, noticed, viii, 150.
Philosophy of geology, by *A. C. G. Jobert*, noticed, vii, 150.
Philosophical Society, American, see *American*.
Philosophical induction, *J. D. Whelpley*, v, 33, 328.
S. Tyler, v, 319.
Phillips, J., on ancient metallurgy in Britain, viii, 96, 258.
on anemometry, ix, 146.
Phillips, R., new test for manganese, ii, 259.
Phillipsite, identity of, with gismondine, viii, 122.
Phlogopite, x, 116, 374, 333.
Phosphamid, v, 407.
Phosphate of lime in organic beings, iii, 261.
of lime in bones, viii, 410.
in greensand and marl, viii, 422.
and pyrophosphate of lime, viii, 112.
of copper, native, viii, 127.
Phosphate of magnesia and ammonia, solubility of, i, 258.
Phosphorescence of the diamond, i, 267, vii, 433.
of potassium, x, 413.
distinguished from incandescence, v, 3.
Phosphorescent fungus, iv, 446.
Phosphoric acid, compounds of, with aniline, iv, 108.
separation of, *H. Rose*, viii, 181, ix, 283.
in natural waters, x, 412.
Phosphoric ethers, *Vogeli's*, ix, 113.
Phosphorite rock of Spain, i, 277.
Phosphorus and nitrogen, compounds of, *C. Gerhardt*, iii, 105.
action of perchlorid of, on organic substances, *A. Cahours*, iii, 256.
fusion of, *E. Desains*, iii, 423.
on new compounds of, v, 116.
Phosphuret of nitrogen, preparation of, ii, 262.
Photogenic paper, new, i, 301.
Photographic self-registering meteorological and magnetic instruments, iii, 428, ix, 319, 444.
Photography, improvement in, i, 301.
different properties of various solar rays in, iv, 409, vii, 272.
on paper, process for, iv, 141.
application to copying microscopic objects, iv, 411.
on glass, vi, 259, x, 285.
Phycologia Britannica, *W. H. Harvey*, i, 454, viii, 453.
Physiological Chemistry, facts in, *J. Liebig*, iv, 135.
Physiology, notice of Carpenter's elements of, ii, 147.
Pickering, C., Report on races of men, noticed, ix, 307.
Pickering, J., obituary notice of, ii, 144.
eulogy on, by Judge White, noticed, iii, 452.
Picric acid, identity of, with nitrophenisic acid, viii, 108.
Picrotoxine, contains no nitrogen, iii, 424.
Piddington, H., Sailors' Horn Book, vii, 144.
on a large diamond, ix, 434.
Pierre, J., on a new compound from the Dutch liquid, v, 413.
Pig Island, vii, 317.
Pinite, ii, 418, iii, 266.
Pinus, divisions of, ix, 149.
Piperine, on the composition and metamorphoses of, x, 260.
Pipestone of the ancient races of America, *E. G. Squier*, ii, 287.
Pipette, for gas, i, 112.
Piria, R., on asparagine, vi, 420.
Pistomesite, viii, 121.
Pitchblende, crystallized, viii, 126.
Pitylus flavo-cinereus, vii, 117.
Planet Saturn, periodic time of satellites of, i, 449.

Planet Saturn, eighth satellite of, vi, 437, vii, 122.
Lassell's observation on, x, 309.
LeVerrier's (Neptune), see *Neptune*.
small, times of discovery of, x, 308.
orbits of, *B. A. Gould*, vi, 28.
on *Olbers's* theory of, vii, 447.
Astræa, i, 293, 443, ii, 434.
Hebe, discovered by *Hencke*, iv, 286, vi, 437.
Vesta, iv, 287.
Iris, discovered by *J. R. Hind*, iv, 425.
Flora, v, 135.
orbit of, v, 282.
Iris, elements of, v, 135.
Metis, discovery of, vi, 140, 278, 438.
Diana, vi, 278, vii, 290.
Hygeia, viii, 145, 428.
Kirkwood's analogy of, ix, 395, x, 19, 26.
prize for discovery of, awarded to Hencke, ii, 435.
Planetary nebulous masses near the sun, iii, 444.
Planorbis multivolvis, *W. Case*, iii, 101.
Plants, number of known species estimated, i, 132.
a new genus, (Darbya,) i, 386.
physical structure of, *D. P. Gardener*, ii, 48.
of Japan and United States, analogy between, ii, 135.
of New England, Oakes's herbarium of, viii, 293.
on some, *E. Tuckerman*, vi, 224.
American species of Potamogeton, vii, 317.
Chenopodiaceæ of New York, *J. Carey*, vii 167.
new and rare, chiefly of the Carolinas, *M. A. Curtis*, vii, 406.
of Kerguelen's Island, vii, 318.
of Antarctic regions, viii, 161.
Geographical distribution of, viii, 162.
of Santa Fe, New Mexico, v, 133.
of different geological epochs, *A. Brongniart*, vi, 120.
coal, of Tuscaloosa, *C. Lyell.* and *C. T. F. Bunbury*, ii, 228.
of Richmond, Va., *Bunbury*, iv, 114.
of Frostburg, Md., ii, 427.
relations of living, to Nöggerathiæ, ii, 279.
influence of light on the growth of, *R. Hunt*, iii, 112.
hybrid, *S. G. Morton*, iii, 209.
influence of protoxyd of nitrogen on, iii, 425.
inorganic substances of, v, 125.
salt a poison to, vii, 299.
of fresh water iodine in, x, 110.
Plate glass making in England, iii, 293.
Platigonus compressus, a new mammal, v, 103.
Platinum, chemico-dynamical action of, i, 110.
in the Urals and Siberia, ii, 120.
apparatus for fusing, *R. Hare*, iv, 44.
native, in North Carolina, *C. U. Shepard*, iv, 280.
in the Alps, vii, 137.
Platinum in California, viii, 294, x, 121.
Plattner on crystallized bile, v, 410.
Pleiades, central group of the universe, *Mädler*, ii, 433.
Pleochroism, iii, 430.
Plesiosaurus megacephalus, iii, 276.
Plestiodon anthracinus, ix, 139.
Plinian, a new mineral, viii, 127.
Ploiaria maculata, ix, 108.
Plücker, on diamagnetism, vii, 270.
magnetic relations of crystals, viii, 430.
Plumbic ochre in Mexico, viii, 420.
Poëbrotherium Wilsoni, *J. Leidy*, v, 276.
Poisons detected by physiological tests, i, 262.
Polarization, elliptic, *Dale*, iii, 262.
by reflexion, *Powell*, iii, 264.
new theory of, *Challis*, iv, 412.
of galvanic light, *C. G. Page*, vii, 375.
of heat, *Provostaye* and *Desains*, viii, 410.
of the atmosphere, *D. Brewster*, x, 400.
Polarizing structure of the eye, *D. Brewster*, x, 394.
Polished, rock in Vermont, v, 110.
Pollen-collectors of Campanula, v, 455.
Polycistine of the Barbadoes, iv, 416.
Polynesians, origin of, i, 301.
cannibalism of, i, 306.
cosmogony of, i, 306.
migrations of, i, 317.
Polythalamia, soft bodies of, found fossil, ii, 275, v, 70.
d'Orbigny's work on, noticed, iv, 452.
of South Carolina, iv, 453.
geographical distribution of, iv, 452.
Poole, H. W., on perfect musical intonation, ix, 68, 199.
Porcelain, aventurine glaze for, viii, 440.
Porter, inorganic constituents of, vii, 102.
Porter, J. A., action of nitric acid on woody fibre, ix, 20.
ash analyzed by, ix, 20.
Poselger on bromid of carbon, v, 124.
Possession Island, vii, 317.
Potamogeton, American species of, *E. Tuckerman*, vii, 317.
Potash and soda rendered caustic, i, 105.
ferrate of, *Fremy*, i, 106.
separation of, from soda, i, 110.
made from greensand, *H. Wurtz*, x, 326.
Potassium, specific heat of, *Regnault*, viii, 411.
phosphorescence of, x, 413.
preparation of ferrideyanid of, iv, 271,
voltaic battery with, iii, 428.
on the decomposition of iodid of, x, 257.
Potato disease, i, 132, 307, iii, 136.
J. P. Norton on, ii, 281, iv, 70.
Potatoes, analysis of the ash of, ix, 20.
Powell, refractive indices of several substances, x, 392.
Prairies of Upper California and Oregon, vii, 247, 256, 387, 389.
Precipitation of various substances by charcoal, *Weppens*, ii, 260.
Prevost, C., views of, on the elevation of mountains, ii, 355.
results of the earth's contraction, iii, 95, 178.
remarks on volcanic action, iii, 180.
Prichard, obituary notice of, vii, 452.

Prime meridian, *Davis* on, viii, 394.
Lovering on, ix, 184.
Prince Edward's Island, vii, 317.
Pringlea antiscorbutica, notice of, viii, 165.
Prismatic analysis of flames, v, 160.
Prizes of Belgium government, vii, 305.
Procellaria brevirostris, *G. N. Lawrence*, iii, 436.
Procyon priscus, v, 106.
Proteine bodies of peas, almonds and oats, by *J. P. Norton*, v, 22.
analysis of, and researches on, vii, 109, 110.
Protochœrus prismaticus, v, 105.
Protractor for trisecting angles, *J. H. Alexander*, vii, 243.
Prout, H. A., fossil palæotherial bone, iii, 248.
Prout, Dr., obituary of, x, 138.
Provostaye, De La, on rotation of the plane of polarization of heat by magnetism, ix, 344.
Prussic acid, new test for, *J. Liebig*, iv, 101.
Pseudomorphous crystals of quartz, i, 430.
Pseudomorphism of minerals, *Blum* on, noticed, vi, 266.
Pseudotriton montanus, ix, 139.
Pterodactyle in English chalk, i, 436.
Pteropus Haldemani, *E. Hallowell*, ii, 273.
Puzzuoli, subsidence at, ii, 269.
Pulley, curve described by a moveable, viii, 252.
Pulses of elastic media, general law of propagation of, *E. W. Blake*, v, 372.
Pygorhynchus Gouldii, *Bouvé*, iii, 437.
Pyranga roseo-gularis, iii, 436.
Pyrenestes coccineus, vii, 116.
Pyrites, magnetic, in meteorites, ii, 383.
Pyrophyllite of Spaa, viii, 122.
in United States, viii, 274.
from Westanâ, x, 249.
Pyroxene, crystalline slags allied to, v, 129.
Pyroxyline, iii, 259, 295.
and analogous compounds, iv, 140, 274.
formula of, *see note*, iv, 141.
Pyrrhite, blowpipe characters of, ix, 423.
Pyrula modesta, v, 433.

Q.

Quartz and hydrophane produced artificially, i, 261.
pseudomorphous crystals of, i, 430.
origin of colors of, ii, 413.
crystals containing rutile, from Vermont, *F. Alger*, x, 12.
ibid. *O. P. Hubbard*, x, 350.
Quicksilver, transparency of, i, 117.
mines in Upper California, vi, 270.
in coal formation, vi, 426.
Quinic acid, chlorinated products of decomposition of, viii, 412.
Quinoidine, composition of, *J. Liebig*, iv, 271.

R.

Racer's storm of Jamaica, &c., in 1837, i, 166.
Radiant heat, laws of, i, 429.
Radiata, alternation of generation in, analogous to reproduction in plants, x, 341.
Radiation of incandescent bodies, v, 1.
Radiation of heat, nocturnal, Melloni, vi, 418.
Rafinesque, mounds of Kentucky, viii, 1.
Railroad excavations in England, i, 146.
wood for, how preserved, i, 301.
improvement in rails and wheels for, ii, 439.
in Italy, iii, 142.
in Pennsylvania, vi, 397.
and canal routes in the Pacific, report on, by *J. A. Rockwell*, noticed, viii, 457.
Rain, acid, i, 112.
and snow at St. Louis, *G. Engelmann*, iii, 438.
from a clear sky, vii, 315,
mean annual amount of, viii, 54.
Rainbows, supernumerary, *J. Brocklesby*, iv, 429.
Raines, G. W., mines of Mexico, vi, 427.
Ralfs, J., on British Desmidieæ, vi, 302.
Rammelsberg, C., on inorganic substances in different parts of plants, v, 125.
analysis of schorlomite, ix, 429.
of margarodite, x, 115.
of hypoclerite, x, 250.
Randall, W. B., salt a poison to plants, vii, 299.
Randanite, a new mineral, viii, 120.
Ray vibrations, *Faraday*, ii, 401.
J. D. Whelpley, ii, 401.
Ray Society, ii, 441, iii, 296, vi, 446, ix, 304, x, 149.
Read, S., on native iron of Canaan, Ct., v, 292.
Redfield, W. C., on hurricanes and norther of the American seas, i, 1, 153, 333, ii, 162, 311.
on the Lake hurricane of Oct., 1844, ii, 321.
on the deviation of a falling body from a perpendicular and on the cause of atmospheric currents, iii, 283, 284.
marine shells in the drift of Brooklyn, v, 110.
labors of, in meteorology, vii, 145.
Redtenbacher, J., common origin of certain acids, iii, 254.
on taurine, viii, 107.
on carbothialdine, viii, 107.
Reeve, Lovell, works by, noticed, x, 149.
Refraction of waves of sound, iii, 140.
Refractive indices of several substances, x, 392.
Regents of the University of New York, Report, vi, 298.
Registration of instruments by photography, iii, 428, ix, 319, 411.
Regnault, V., on boiling point of water at different heights, i, 134.
specific heat of potassium, viii, 411.
atomic weight of silver, carbon, potassium, viii, 411.
Reid, Wm., work on storms, noticed, viii, 455.
Reich, G., on detecting starch sugar in cane sugar, v, 259.
Relations between animals and the elements in which they live, *L. Agassiz*, ix, 369.
Reproduction in the inferior animals, v, 280.
Reptiles, two from Oregon, *A. J. Skilton*, vii, 202.

Reptile, discovery of a large fossil, called the Pelorosaurus, ix, 147, 439.
new species of, *S. F. Baird*, ix, 137.
Respiration, amount of carbon expired in, ii, 262.
Retzius, A., on the ethnological distribution of round and elongated crania, iii, 138.
Reymond, Du Bois, on the deflection of the magnetic needle by the act of volition, viii, 404.
observations by, reviewed, viii, 405, 406.
Reynoso, A., mode of detecting bromine and iodine, ix, 114.
Rhizopodi, characteristic of the supracretaceous deposits, work on, noticed, i, 149.
Rhodium, fusion of, *R. Hare*, ii, 365.
apparatus for fusing, *R. Hare*, iv, 44.
Rhodonite, ix, 410.
Rhubarb, action of nitric acid on, x, 263.
Rhynchospora Knieskernii, *J. Carey*, iv, 25.
Richardson, J., knighted, i, 452.
death of, vi, 297.
Riddell, J. L., rule for involution and evolution by logarithms, vii, 232.
Rigaud, S. P., relative quantities of land and water on the earth, ii, 289.
Rive, De la, molecular phenomena of the voltaic arc, iii, 110.
River, Sabbatic, *W. M. Thomson*, ii, 305.
Mississippi, detritus and delta of, *C. Lyell*, iii, 34, 118.
Nile, remarks on, *C. T. Beke*, iii, 447.
terraces, vii, 1, 256, ix, 86.
Rivoli collection of birds at Philadelphia, ii, 296.
Road making, *W. Gillespie's* manual of, iv, 148.
Rocks, effects of fusion on density of, v, 258, vi, 133, 423.
decomposition of, *Ebelman*, viii, 421.
ibid. *Prof. Rogers*, vi, 396.
degradation of, in New South Wales, ix, 289.
igneous, origin and relations of, *J. D. Dana*, ii, 348.
of Europe and America, parallelism of, v, 176, 369, vii, 45, 218.
of South Carolina, viii, 62.
of Upper California, vii, 247.
on the mineralogical and chemical composition of some, *Delesse*, x, 252.
slide of, in South Carolina, vi, 443.
Rockwell, J. A., report by, on Railroad and Canal routes between the Atlantic and Pacific, viii, 457.
Rocky Mountains, origin of, iii, 98.
observations on geology, height, hot springs, &c., *J. C. Fremont*, iii, 192, 273, 450, vi, 280.
ibid. *J. W. Abert*, iii, 301. vi, 376.
ibid. *W. H. Emory*, vi, 386.
ascent of Wind river chain, by *J. C. Fremont*, iii, 193.
section of, *J. C. Fremont*, iii, 196.
ibid. *W. H. Emory*, vi, 386.
sections and characters of, *J. D. Dana*, vii, 376.
Roberts, S. W., Topography of Pennsylvania and Ohio, by, noticed, vi, 397.
Rogers, H. D., fluor spar in cannel coal, ii, 124.
and *W. B*, on the geological age of the White Mountains, i, 411.
Rogers, W. B., and *R. E.*, on a new mode of obtaining pure chlorine, i, 428.
new process for formic acid and on the preparation of aldehyde and acetic acid, ii, 18.
on the absorption of carbonic acid by liquids, v, 114. vi, 96.
new method of determining the carbon in graphite, v, 352.
on the decomposition of minerals, rocks, &c., by pure and carbonated water, v, 401.
oxydation of the diamond in the liquid way, vi, 110.
decomposition of rocks by meteoric waters and action of mineral acids on feldspar, vi, 396.
Rogers, R. E. and *J. B.*, on the alleged insolubility of copper in hydrochloric acid and on Fuchs's method of analyzing iron ores, vi, 395.
Rogers, W. B., remarks on gypsum, v, 113.
on the transporting power of currents, v, 115.
on acid and alkaline springs, ix, 123.
Roman coins found in France, ii, 141.
Römer, F., on the geology of Texas, ii, 358, vi, 21.
Root, O., solution of a mathematical problem, iii, 50.
Rose, G., identity of castor with petalite, x, 250.
Rose, H., new metals observed by, i, 103, iii, 357.
on the acid in the North American columbite, iv, 408.
on separation of cobalt and nickel, v, 411.
separation of phosphoric acid, viii, 181, ix, 283.
Ross, J. C., statements of, in reference to Wilkes's Antarctic explorations, corrected, v, 287, vii, 321.
Voyage of, to Antarctic, reviewed, vii, 313, viii, 14.
Rosse's telescope, vi, 139.
Rotation, *Kirkwood's* analogy of, in the periods of planets, ix, 395, x, 19, 26.
Rowell, G. R., beneficent distribution of the sense of pain, vi, 89.
Royal Society, historical remark relating to, iv, 256.
anniversary of, ix, 204.
Rucu-Pichincha, exploration of the volcano of, iv, 417.
Ruc, W. de la, on the Navicula Spencerii, vii, 265, ix, 23.
Ruffin, E., fossil nut in the Eocene, ix, 127.
Ruins of Nineveh, v, 141, 297, ix, 447.
Russia, diamonds, gold, platina and minerals of Urals, ii, 119, 120.
review of geology of, iii, 153.
cultivation of cereal grains in, iii, 288.
geology of the Petschora Land, by *Count Keyserling*, noticed, iv, 419.
yield of gold in 1846, vi, 275.

Ruthenium, test for, ii, 111.
atomic weight of, ix, 422.
Rutherford, L. M., observations during the lunar eclipse of September, 1848, vi, 435.
Rutile in quartz, *F. Alger*, x, 12.
and chlorite in quartz, *O. P. Hubbard*, x, 350.
trimorphism of, ii, 416.

S.

Saalmüller, acids of castor oil, viii, 106.
on margaritinic acid, viii, 263.
Sabbatic river, account of, *W. M. Thomson*, ii, 305.
Sacc, on the functions of pectic acid, ix, 20.
Saccharine substances, digestion of, ii, 264.
Sacharite, a new mineral, ii, 415.
Sacramento region, vii, 256, 261, 305.
Bute, vii, 259.
Sailor's Horn Book for Storms, by *H. Piddington*, noticed, vii, 144.
Saint Hilaire, A. de, on the Minhocão, iv, 130.
Saint Paul's Rocks, vii, 315.
Salamanders, four new species of, ix, 137.
Salamandra granulosa, vii, 202.
Salicylic ether, ix, 279.
Saline on the Kiskiminetas river, bittern of, *M. H. Boyé*, vii, 74.
incrustations, Upper California, vii, 248.
of Rocky Mountains, vii, 382.
Salisbury, J. H., on maize, noticed, viii, 307.
Saliva, human, analysis of ashes of, i, 107.
sulpho-cyanogen in, *M. Pettenkofer*, ii, 263.
diastase in, ii, 264.
Salt, amount of, in seas, vi, 148.
Salt lakes of Cape Breton, i, 278.
Lake, Rocky Mountains, or Lake Timpanogos, iii, 198.
of Upper California, vi, 280, 388.
of New Mexico, vi, 390.
and saline springs in Koordistan, iii, 353.
in Algeria, iii, 432.
a poison to plants, vii, 299.
Salt radical theory of Liebig discussed, i, 82, 377.
Salts precipitated by animal charcoal, *Weppens*, ii, 260.
researches on, *C. Gerhardt*, vi, 337.
Samarskite, new mineral, vi, 266.
Sandstone of Bristol, Ct., containing fossil trees, iv, 116.
tubes in Alabama, *A. Bigelow*, ii, 421.
Santalaceæ, a new genus of, described, i, 386.
Sapinus, new genus of pines, ix, 118.
Sapphirina, eyes of, *J. D. Dana*, ix, 133.
Satellite of Neptune, iv, 287, v, 135, 282.
eighth of Saturn, vi, 437, vii, 122.
Saturn, see *Planet*.
Saussure, T. de, death of, ii, 145.
Savage, T. S., on Troglodytes gorilla, viii, 141.
Say, T., Researches in Entomology, i, 20.
monument to, iii, 298.
Scandinavia, palæozoic deposits of, i, 271.
on erratic blocks and elevations of, *M. Desor*, iii, 313.
Scandinavia, primitive race of, iii, 317.
Schaeffer, G. C., on perchromic acid, v, 124.
Schaeffer, G. C., on the manufacture of ice, vi, 380.
Chemical abstracts, iii, 105, 255, 423, iv, 107, 269, v, 124, 262, 413, vi, 256, 420, vii, 281, 431, viii, 109, 269, 412, ix, 114, 279, 418, x, 112, 261.
Schafäutl, analysis of Margarodite, x, 115.
Scheerer, discoveries in isomorphism, ii, 115, v, 381, vi, 57, 189.
Schizopodous crustacea, *J. D. Dana*, ix, 129.
Schlieper, A., on decomposition of gelatine by chromic acid, v, 118.
oxydation of uric acid, vi, 363.
action of nitric acid on sebacic, vii, 420.
analysis of manganese spar, ix, 410.
Schneider, R., analysis of Wolfram, x, 254.
Schomburgk, R. H., on the Barbadoes, iv, 416.
Schönbein, C. F., ozone, ii, 103, iv, 320.
patent of, for gun-cotton, iv, 138.
on the discovery of gun-cotton, iv, 440.
on the decomposition of iodid of potassium, x, 257.
Schorlomite, a new mineral, ii, 251.
examination of, *J. D. Whitney*, vii, 433.
analysis of, *R. Crossley*, ix, 429.
Schreibersite, ii, 383, viii, 410.
Schröder, M. S., on boiling points and constitution of organic substances, i, 115.
Schröter, Bessel assistant to, iv, 307.
Schrotter, on phosphorus, vii, 111,
Schunk, E., on coloring matters, vii, 275.
use of tin plate scrap in the manufacture of iron, ix, 279.
Schwarz, H., estimation of nitrous acid, ix, 114.
Schweitzer, E. G., test for nitric acid, i, 108.
on stibethyle, x, 263.
Schweizer's Comet, August, 1847, iv, 426, v, 135.
Scink, new species of, ix, 137.
Scoffern, sugar produce of Spain, x, 409.
Scolecite, formula of, ii, 418.
Scoresby, on developing the magnetic condition, iii, 114.
on Atlantic waves, x, 386.
Scoria of Kilauea, analysis of, ii, 273.
Scotland, terraces of, vii, 7.
Sea, Dead, see *Dead*.
Sea-elephant, a gigantic seal, vii, 317.
Sea margins, ancient, *R. Chambers*, iv, 323, vii, 1, viii, 33.
Sea shore and coast formations, peculiarities of, vii, 12, viii, 86.
Sea-Side Book, by *Dr. W. H. Harvey*, noticed, viii, 453.
Sea-water, see *Water*.
Sea-weed of the Falklands, viii, 170.
Sebacic acid, action of nitric acid on, *A. Schlieper*, vii, 420.
Secchi, A., curve described by a moveable pulley, viii, 252.
Seebeck, F. W. A., obituary of, viii, 450.
Selenaldine, v, 123.
Selenium, vi, 254.
Senarmont, H. de, on conductility of heat, v, 414.
on the formation of minerals, viii, 421.
Serapis, *Babbage* on, noticed, vi, 152.
Serpentine, analysis of, *Scheerer*, v, 387.
Serpentine, x, 253.

Serres, on the negro races of Oriental Africa, x, 276.
Shark, fossil jaw of, i, 280.
Shark, fossil vertebræ of, i, 286.
Sharks teeth of United States, *R. W. Gibbes* on, vii, 441.
Sharpe, D., on slaty cleavage, iii, 430, iv, 110.
Shasty Peak and mountains, vii, 249.
Shea butter, composition of, ix, 116.
Shells, microscopic structure of, i, 283.
of the eocene described, *T. A. Conrad*, i, 209, 395.
of the miocene and living, *T. A. Conrad*, i, 404.
freshwater, of Rockbridge Co., Va., *T. A. Conrad*, i, 405.
of Tampa Bay, Catalogue of, *T. A. Conrad*, ii, 399.
recent, of East Florida coast, *T. A. Conrad*, ii, 369.
fossil, from Columbia river, v, 432.
from Australia, *J. D. Dana*, iv, 151, v, 433.
Helix annulata and Planorbis multivolvis, *W. Case*, iii, 101, 276.
on an Argonauta fractured and repaired, *C. B. Adams*, vi, 137.
of Connecticut, collected by *J. H. Linsley*, vi, 233.
boring of, ii, 276, vii, 288.
Shell cameos, v, 287.
Shepard, C. U., new minerals from Arkansas, ii, 249.
Report on meteorites, ii, 377, iv, 74, vi, 402, x, 127.
diamond from North Carolina, ii, 253.
fall of meteoric stones in Iowa, iv, 288.
notices of Tautolite, Arkansite, native platinum in North Carolina, iv, 278.
new minerals from Lancaster Co., Pa., vi, 249.
meteorite of Castine, Maine, vi, 251.
on Rammelsberg's analysis of the Juvenas meteorite, vi, 346.
on Fischer's examination of the Braunau meteorite, vi, 348.
meteoric iron in South Carolina, vii, 449.
localities of minerals in North Carolina, Wavellite in Georgia, and Babingtonite in Massachusetts, viii, 275.
Shepardite, viii, 440.
Shepherd, F., mass of native copper, Lake Superior, iv, 115.
on drift furrows, scratches, &c., Lake Superior, iv, 282.
on the habits of an insect, iv, 423.
Shooting stars of Aug. 10, and Nov. 13, 1845, *E. C. Herrick*, i, 86.
of August, 1846, *E. C. Herrick*, iii, 125.
of November, 1846, *E. C. Herrick*, iii, 126.
of August, 1847, *E. C. Herrick*, vi, 278.
of August, 1848, *E. C. Herrick*, vi, 279.
seen in France, vi, 439.
of April and August, 1849, viii, 429.
Shortrede's logarithmic tables, errors in, v, 400.
Siberia, expedition to, i, 307.
gold and Platina of, ii, 120.
cultivation of cereal grains in, iii, 288
Siberian explorations by Middendorff, iii, 134, 450.
mammoth, iv, 13.
Sidereal Messenger, notice of, ii, 442.
Sienites, crystallization of, *J. D. Dana*, ii, 351.
Sierra Nevada, California, vi, 280, vii, 380.
Sigillaria and Stigmaria, ii, 279.
Silesia, origin of coal of, *Göppert*, iii, 119.
Silica, *Kopp*, on, iii, 261.
remarks on, *Dovert*, v. 124.
native hydrated, viii, 120.
atomic weight of, *H. Kopp*, ix, 284.
Silicates and boratos, general formulas for, v, 405.
in blood of fowls, v, 120.
new mode of decomposing, *H. Wurtz*, x, 323.
Siliceous shells of infusoria in guano, i, 442, 452.
Silliman, B., Jr., composition of calcareous corals, i, 189.
analyses of some natural waters, ii, 218.
Texas and Lockport meteoric iron, ii, 370.
hydrate of nickel (emerald nickel), native, iii, 407, vi, 248.
fossil trees of Bristol, Conn., iv, 116.
meteoric stone of Concord, N. H., iv, 353.
on chloroform, v, 240.
on Gibbsite and Allophane, vii, 411.
analyses of American minerals, viii, 377.
description of Lancasterite, ix, 216.
analysis of Emerylite, x, 117.
Professor in Yale, iii, 451.
First Principles of Chemistry of, noticed, iii, 141.
optical examination of micas, x, 372.
diathermancy of micas, x, 373.
Sillimanite, identity of, with fibrolite, kyanite, bucholzite, viii, 386.
Silurian classification, remarks on, *R. I. Murchison*, iii, 404.
System in Mexico, vi, 379, 380.
Silver, atomic weight of, *Regnault*, viii, 411.
iridescent, formed by the galvanic circuit, i, 112.
bismuth, ii, 418.
estimation of, when mercury is present, iii, 255.
native, of Norway, vii, 305.
of Lake Superior, vii, 286, x, 69.
of Chili with native copper, x, 255.
ores, reduction of, in Mexico, *G. W. Raines*, vi, 427.
mines of Chihuahua, vi, 384.
solubility of chlorid of, viii, 111.
reduction of the chlorid of, ix, 418.
Silvering glass by gun-cotton, viii, 117.
Simpson, Sir George, on Lake Baikal, v, 295.
Siphonotretæ, new genera of, vii. 457.
Sirocco dust, microscopic animals in, *Ehrenberg*, iv, 423.
Sjogren, analyses of minerals, x, 245, 249.
Skilton, A. J., two Oregon reptiles, vii, 202.
Skinner, T. S., the Plough, the Loom, and the Anvil, by, noticed, ix, 309.
Skinner, P., letter on frozen fish, x, 132.

Skulls of Indians, how flattened, *S. G. Morton*, ii, 16.
vertebrate structure of, *R. Owen*, iii, 122.
Slags from iron furnaces, report on, v, 127.
Slaty cleavage in North Wales, *G. Sharpe*, iii, 430, iv, 110.
Sluamer, B., sugar in the flowers of the Rhododendron ponticum, x, 113.
Slide of a rock in South Carolina, vi, 443.
Slopes, talus, angle of, vi, 133.
Smelite, a new mineral, v, 268.
Smelting of copper ores by a new process, v, 260.
Smith, Arthur, on the hydrates of nitric acid, v, 263.
Smith, Azariah, thermometrical observations in Western Asia, ii, 72.
notice of Nineveh, v, 141, 297.
Smith, H. L., Natural Philosophy for the use of Schools, by, noticed, iv, 302.
Smith, J. L., on the blast furnace, i, 170.
freezing water by the air-pump without the aid of sulphuric acid, i, 265.
on the manufacture of iron, ii, 95.
in Turkey, iv, 449.
on the annular eclipse of the sun, Oct., 1847, v, 283.
on two new minerals, Medjidite and Liebigite, v, 336.
emery formation of Asia Minor, vii, 283, ix, 289, x, 354.
chrome iron and meerschaum of Asia Minor, vii, 285.
Smith, R., analysis of ammonia and cyanogen compounds, ii, 112.
Smith, R. A., on the air and water of towns, vii, 279, x, 411.
Smith, extraction of mannite from the dandelion, ix, 285.
Smithsonian Institution, ii, 440, iii, 132, 284, vi, 288, 305, viii, 158, 306, ix, 312.
Smyth, T., work on the Unity of the Human Races, noticed, x, 143.
Smyth, on Cometary physics, x, 399.
Snails, boring power of, *W. C. Trevelyan*, ii, 276.
Snake, glass, muscles in, *W. M. Carpenter*, ii, 89.
Snell, G. S., on the sphere and least circumscribed cone, v, 227.
Snow, cylindrical masses, of Orkney, iv, 292.
exemplifying a law of cohesive attraction, v, 109.
Soap tree, butyric acid from, ix, 116.
Society, Natural History of Concord, ii, 441.
Ray, iii, 296, vi, 446, ix, 304.
of Naturalists at Trieste, iii, 451.
Boston, of Natural History, see *Boston*.
of Arts, Transactions of, ix, 457.
Royal, of London, anniversary of, noticed, ix, 304.
see also *Lyceum* and *Academy*.
Soda, quantitative determination of, and separation from potash, i, 110.
action of caustic, on a stoneware jar, iv, 105.
Sodalite, vii, 435, x, 250.
Soils, nitrification and fertilization of, *F. Kuhlmann*, iv, 107.
Solar rays, phenomena of, *E. C. Leedom*, i, 28.
Solar parallax, expedition to South America to observe Venus with reference to, vi, 143, viii, 303.
Solar spectrum, elementary colors of, v, 1.
Solen curtus, v, 433.
Solitaire, bird, of Mauritius, vii, 62.
Solubility of gypsum, *Anthon*, ii, 114.
of fluor spar, *G. Wilson*, ii, 114, x, 413.
Solution, limit of sub-division by, v, 48.
Sorel, fabrication of zinc compounds not injurious to health, x, 276.
Soubeiran, on varieties of chloroform, ix, 115.
on sugars of honey, x, 113.
Sound from the vibration of soft iron, i, 426.
Soundings, collection of specimens from, v, 318.
near St. Paul's rocks vii, 315.
in Atlantic, *J. C. Ross*, vii, 316.
on the Aguilas bank, vii, 316.
in Antarctic regions, vii, 326.
Southern Journal of Medicine, i, 312.
South Carolina, *Tuomey's* geological report on, reviewed, viii, 61.
F. S. Holmes, on geology of, vii, 187.
meteoric iron in, vii, 449.
Spathic iron, from near zinc mines of Altenberg, analysis of, x, 248.
Specific gravity, water at maximum density for determining, iii, 427.
Spectra of various flames, v, 166.
Specular iron artificially produced, i, 430, ii, 411.
Spencer, C. A., compound achromatic microscope by, v, 237, 285, 443, vii, 265.
Spencer, J. A., travels in the Holy Land, noticed, ix, 456.
Sphagnum, species of, i, 72.
Sphene, large crystals of, *Vaux*, ix, 430.
Sphenomite, a new meteoric mineral, ii, 380.
Sphere and least circumscribing cone, *E. S. Snell*, v, 227.
Spherical geometry and trigonometry, of *A. D. Stanley*, noticed, vii, 150.
Spheroidal state, congelation of mercury by, iv, 101.
of water, motive power from using, vii, 304.
of bodies, incombustible man, etc., viii, 431.
Spinellane or nosean, vii, 435.
Spirula, animal of, i, 131.
Spitzberg, temperature of sea of, near icebergs, vi, 143.
Spodumene, from a new locality at Norwich, Mass., x, 119, 264.
isomorphism of, with pyroxene, *J. D. Dana*, x, 119.
analyses of, *G. J. Brush*, x, 370.
Spondylosaurus, i, 440.
Sponge, observations on, by *Laurent*, vi, 277.
freshwater, of the Island of Bombay, x, 301.
remarks on, *J. D. Dana*, ii, 194.
Sprague, I., genera of plants, by, noticed, viii, 452.
Spratt, Fauna of Ægean, vii, 300.
Springs, mineral, arsenic in, iii, 260, vi, 422.
metals in, v, 120.
beer and thermal, of Rocky Mountains, iii, 198, 450.

Springs, mineral, of California, iii, 200, vi, 389, vii, 250.
sulphur, in New Mexico, vi, 389, 390.
in Florida, ii, 46.
hot sulphur, in Koordistan, iii, 349.
saline, in Koordistan, iii, 353.
acid, vii, 175, viii, 364, ix, 123, 449.
Squier, E. G., Indian mounds and relics, ii, 234, iii, 237.
Indian discoidal stones, ii, 216, 287.
pipestone of the mounds, ii, 287.
hieroglyphical mica from the mounds, iv, 145.
on the Mexican Calendar Stone, vii, 153.
ancient monuments of Kentucky, viii, 1.
work on Indian mounds, published under the Smithsonian Institution, noticed, iv, 438.
St. Petersburg, transactions of Mineralogical Society of, vii, 457.
St. Louis limestone, *G. Engelmann*, iii, 119.
Stadtmuller, L., analysis of Nuttallite, viii, 394.
Stüdeler, G., chlorinated products of decomposition of quinic acid, viii, 412.
action of chlorine on lactic acid, x, 258.
Staite's electric light, vii, 450.
Stanley, A. D., on the variation of a differential coefficient of a function of any number of variables, iii, 415.
Logarithms of, noticed, v, 145.
errors in different mathematical tables, v, 398.
Elementary Spherical Geometry and Trigonometry of, noticed, vii, 150.
Stannine, a new mineral, viii, 127.
Staurotide, analysis of, ii, 418.
isomorphous with Andalusite and Topaz, *J. D. Dana*, x, 121.
a supposed, x, 121, 414.
Star Antares, ii, 280, 434.
Alcyone, centre of universe, ii, 434.
projected on the dark limb of moon, owing to diffraction, ii, 433.
memoir on colors of, by *P. B. Sestini*, noticed, iii, 281.
double, physical connection of, not proved by theory of probabilities, x, 398.
supposed new, vi, 140.
shooting, see *Shooting Stars*.
Star-charts, Ecliptic, vii, 290.
Statistics of iron trade in Great Britain, iii, 291.
of plate glass making in England, iii, 293.
of Life in the several professions, iii, 297.
of mines in Belgium, iii, 293.
of deaths among children, iii, 297.
Steam, decomposition of mineral substances and salts, by, vi, 260.
Navigation, Atlantic, iii, 141.
Stearic acid, composition of, viii, 270.
Steatite, analysis of, viii, 122.
Steel, amalgamation of, to prepare for fire gilding, *Böttger*, ii, 266.
native and nickeliferous, in meteorites, ii, 383.
Stellite, vii, 434.
Stenhouse, J., on chloropicrine, vii, 429.
analysis of mannite, ix, 285.
production of organic bases from vegetable substances, ix, 420.
Stercorite in guano, viii, 129.
Sterna cantiaca, *Cabot*, vi, 136.
Stettner, J., on manna, vii, 112.
Stevelly, on the projection of a star on the dark limb of the moon, ii, 433.
on the occasional distinct vision of revolving colored sectors, x, 401.
Stevenson, T., force of waves, ii, 139.
Stibethyle, x, 263.
Stiblite, a new mineral, v, 268.
Stigmaria, the roots of Sigillaria, i, 435.
Stilbite, composition of, viii, 123, x, 249.
Stoastoma,, genus of shells, *Adams*, ix, 133.
Stoddard, O. N., new mode of amalgamating zinc, vii, 431.
a magneto-tangential machine, vii, 432.
Stokes, G. G., on metallic reflection, x, 391.
fictitious displacement of fringes of interference, x, 392.
on Haidinger's Brushes, x, 394.
Stone, artificial, i, 302, vi, 145, 446.
Stone Jar, action of caustic soda on, iv, 105.
Storer, D. H., Synopsis of the Fishes of North America, by, noticed, ii, 145.
Storm of H. M. S. Racer, *Col. Reid*, i, 166.
of Cuba and the Atlantic, i, 333.
on the great lakes, Oct. 18th, 1844, ii, 321.
Storms, *W. C. Redfield*, on, i, 1, 153, 333, ii, 162, 311,
rates of their progressive motion, i, 15, ii, 163.
Mr. Thom's work on, i, 16.
their whirlwind action, i, 11, 161, ii, 166, 175–180.
their vertical height, ii, 184.
fall of barometer under their rotary action, i, 161, ii, 311.
induce an increase of temperature at their access in winter, ii, 318.
Mexican origin of most, which visit the United States, i, 153, 163, ii, 322.
move in general accordance with the great currents of the lower atmosphere, ii, 326.
Mr. Piddington's work on, vii, 144.
Col. Reid's work on, i, 2, viii, 455.
practical directions for mariners in, *W. C. Redfield*, ii, 330–334.
value of electric telegraph in announcing approach of, *W. C. Redfield*, ii, 334.
Strachey, meteorological observations at Thibet, x, 396.
Strecker, on ox-gall, v, 417.
Strickland, H. E., use of the words analogy, homology and iconism, iii, 339.
on the Dodo and allied birds, iv, 422, vii, 52.
Stroganowite, a new mineral, ii, 413.
Structure, furrows dependant on, *C. B. Adams*, iii, 433.
Struve, O., on satellite of Neptune, v, 282.
Struvite, a new mineral, ii, 268.
Strychnine, test for, v, 411.
Strzelecki's New South Wales, i, 278.
Subdivision by trituration and solution, v, 48.
Subsidence of land at Puzzuoli, ii, 269.
in the Cutch, ii, 270.

Subsidence, zones of, proved by fiords, *J. D. Dana*, vii, 379, 380.
in Pacific, proved by Coral Islands, ii, 354, iii, 94.
Sugar, *E. Peligot's* method of estimating the quantity of, iii. 109.
of gelatine from hippuric acid, iii, 257.
A. Laurent, iii, 258.
E. N. Horsford, iii, 369, iv, 58, 326.
T. S. Hunt, iv, 108, 266, v, 74, vi, 259.
Marchand, ii, 413.
products of decomposition of, v, 118, vii, 107, 109.
in urine, production of, by wounding the brain, x, 113.
in the flowers of the Rhododendron ponticum, x, 113.
of honey, *Soubeiran*, x, 113.
test for the presence of, x, 109.
in the liver, *Bequard* and *Barreswill*, x, 112.
McCulloch's report on, viii, 150.
new mode of extracting, from sugar cane, ix, 301, x, 411.
of milk, in milk of Carnivora, v, 119.
the cotyledons of seeds, x, 113.
produce of Spain, x, 409.
Sugar cane, starch-sugar in, v, 259.
Sullivant, W. S., Musci Alleghanienses, i, 70.
Mosses and Liverworts, by, in Gray's Manual of Botany, v, 297.
Sulphate of lime, solubility of, *Anthon*, ii, 114.
Sulphato-chlorid of copper, a new mineral, *Connell*, iv, 415.
Sulpho-cyanogen in human saliva, ii, 263.
Sulphur obtained from gypsum, v, 261.
crystallization of, vii, 282.
anomaly in atomic volume of, vi, 170.
atomic volume of, x, 264.
in organic substances, mode of estimating, v, 408, vi, 422.
in meteorites, ii, 384.
spring, E. Florida, ii, 46.
in Mexico, vi, 389, 390.
hot, in Koordistan, iii, 349.
mines of, in Koordistan, iii, 353.
Sulphuric acid, manufacture of, *A. A. Hayes*, vi, 113.
springs of New York, etc., vii, 175, viii, 364, ix, 123, 449.
action of iron and zinc with anhydrous, viii, 271.
Sulphur acids, analysis of some, viii, 109, 110.
Sulphuretted hydrogen, action of, on nitric acetene, *T. S. Hunt*, iv, 350.
Sulphurous ether, how formed, i, 261.
Sun, planetary nebulous masses near, iii, 444.
eclipse of, in April, 1846, ii, 138.
annular eclipse in Oct., 1847, v, 283.
central of the Universe, ii, 433.
daily intensity of, at the exterior surface of the earth, x, 49.
and moon, photographic images of, x, 287.
Superior, Lake, mass of native copper, from *F. Shepherd*, iv, 115.
columnar basalt on, iv, 118.
Tautolite, [should read, Tachylite], on north shore, iv, 278.
Superior, Lake, ores and minerals of, ii, 118, vii, 286, x, 65.
erratic phenomena of, *L. Agassiz*, x, 83.
Swan, Wm., on gradual production of luminous impressions on the eye, ix, 443.
Syenites, crystallization of, ii, 351.
of Upper California, vii, 253.

T.

Tabulæ Atomicæ of Rose, edited by *W. P. Dexter*, x, 298.
Taconic rocks, *C. B. Adams*, on, v, 108.
Talc of Rhode Island, analysis of, viii, 122.
analysis of, x, 253.
Talcose Rocks of Upper California, vii, 254, 261, 262.
Tallow, Chinese vegetable, ix, 116.
Talus slopes, vi, 133.
Tampa Bay, Florida, Geology of, i, 38.
Tanning, on tests of astringent substances for, vi, 112.
Tantalite, new metals in, iii, 357.
on the acid in the North American, *H. Rose*, iv, 408.
Tapir, fossil, jaw, &c., of, from Texas, i, 247.
American, *Leidy*, ix, 140.
Tartaric acid, fermentation of, iv, 271.
Taurine, *J. Redtenbacher*, viii, 107.
Taylor, H., on apparent motion of red and blue figures in worsted, vii, 132.
Taylor, J. S., notice of Trilobites in the cabinet of, x, 113
Taylor, R. C., on coal in China, ii, 143.
work by, on coal, noticed, vi, 150.
Tea plantations in India, vii, 135.
Telegraph, electrophonic, ii, 118.
electric, lines of, in United States, iii, 296, v, 55, 66.
fact *v.* fancy, iii, 449.
use of, for determining differences of longitude, v, 313, x, 151.
history of, iv, 253, vi, 439.
register to astronomical clock, vii, 206, viii, 231, x, 151.
reports by, of meteorological phenomena, *W. C. Redfield*, ii, 334.
Telescope of Cambridge, nebula in Orion resolved by, iv, 426.
of Cincinnati Observatory, i, 297, 315.
of Washington Observatory, i, 294.
Rosse's, vi, 139.
Telescopes, Fitz's, vi, 437.
Telluret of bismuth from Virginia, *C. Fisher, Jr.*, vii, 282.
ibid. *C. T. Jackson*, vi, 188, x, 78.
Telluric bismuth, Brazil, viii, 127.
Temperature of the Mediterranean, i, 133.
of winter Atlantic storms, *W. C. Redfield*, ii, 319.
of Utica, vi, 296.
as indicated by opening and closing of the Hudson, vi, 295.
influence of, on fauna of Ægean, vii, 300.
of New Zealand and Auckland Islands, viii, 22, 23.
of Upper California, vii, 291.
of Antarctic Ocean, viii, 24 *et seq.*
diurnal variations of, viii, 42, 218, 350.
loss of, from nocturnal variation, viii, 45, 218.

Temperature, monthly differences of, *W. A. Norton*, x, 338.
on cause of rise of isothermal lines in northern winters, x, 397.
Teneriffe, notes on plants, &c., of, iv, 121.
Tennessee, geology of, *I. N. Loomis*, i, 222.
fossil bones from, *W. M. Carpenter*, i, 244.
minerals of, v, 421.
Tension of vapor of water, *J. H. Alexander*, vi, 210, 317.
Terebol, vii, 430.
Ternate, earthquake in, v, 422.
Terra del Fuego, plants of, viii, 163.
Terraces, on the study of, *J. D. Dana*, vii, 1, viii, 86.
of Scotland and other regions, vii, 4, viii, 33.
on the Sacramento, vii, 256, 261.
Kerguelen's Island, vii, 318.
of the country bordering Lake Erie, x, 31.
Tertiary of United States, *T. A. Conrad*, i, 209, 395.
of Alabama, vi, 354.
of Mississippi, *T. A. Conrad*, ii, 124, 210.
of Florida, *T. A. Conrad*, ii, 36, 399.
of Upper California and Oregon, vii, 260.
of Oregon, fossils of, v, 432.
of South Carolina, viii, 67.
Echinoderms, *S. G. Morton*, ii, 273.
of Russia, iii, 157.
infusoria of, in Maryland, vii, 437.
Teschemacher, J. E., on guano, noticed, i, 311.
Damourite in the United States, ii, 119.
new mineral from the Azores, iii, 32.
fossil vegetation of America, iii, 86.
of anthracite coal, iv, 420.
angles of Arkansite, viii. 274.
Tetradymite, vii, 282, viii, 127, x, 79.
Texas, petrified wood in, ii, 124, 359.
on the geology of, *F. Römer*, ii, 358, vi, 21.
meteoric iron of, ii, 370.
Theine, method of preparing, *Heinsius*, x, 109.
Theories of Franklin, Dufay and Ampère, objections to, by *R. Hare*, v, 230, 313.
Thermometers, comparison of Centigrade and Fahrenheit, x, 281.
Thialdine, v, 122.
Thibet, meteorological observations at, x, 396.
Thjorsauite, vii, 114.
Thompson, L., on preparation of chloric acid and chlorates, v, 262.
Thompson, D. P., work on meteorology, noticed, vi, 154, viii, 305.
Thompson, Z., History of Vermont, v, 301.
fossil bones in Vermont, ix, 256.
Thomson, R. D., law of balance of food in nutrition, viii, 435.
Thomson, R. T., on Shea butter and vegetable tallow, ix, 116.
Thomson, W. M., on the Sabbatic River, ii, 305.
Thoracoceras, a new genus of orthoceratites, i, 440.
Thoughts on Animalcules, by *G. A. Mantell*, noticed, ii, 149.
Thulite, analysis of, x, 251.
Tidal observations on United States coast, v, 317.
Tital action on coasts, memoir on, by *C. H. Davis*, noticed, viii, 305.
Tides at Kerguelen's Island, vii, 320.
Tilghman, R., decomposing power of water at high temperatures, v, 266.
Timor, falling of a mountain at, v, 423.
Tin, separation of, from antimony, i, 107.
native, ii, 415.
dimorphous, vi, 255.
mines of Malacca, vi, 130.
mines of Banka, vii, 86, viii, 291.
in plumbaginous slates, x, 134.
plate scrap, use of, in the manufacture of malleable iron, ix, 279.
Titaniferous mineral, new, *T. S. Hunt*, ii, 30.
veins of the Alps, origin of, ix, 122.
Titanium, native, ii, 414.
equivalent number of, iv, 103.
researches on compounds of, *G. M. Ebelman*, vii, 106.
Tobacco, alkaloid of, ii, 409.
acids of, *E. Goupil*, iii, 423.
mode of determining the amount of nicotine in, iv, 272.
Tooley, H., meteorological register at Natchez, ii, 429.
Topaz, crystals and fluids in, i, 121, v, 420.
in North Carolina, viii, 275.
Topographical Bureau, works by, viii, 306, 307.
Topography of Pennsylvania and Ohio, vi, 397.
Tornados, occur locally in great storms, *W. C. Redfield*, ii, 186.
Toronto Observatory, i. 137.
Torpidity and hibernation, v, 108.
Tracks, see *Footprints*.
Transactions of the American Philosophical Society, see *American*.
of the Linnæan Society, v, 451.
of the Royal Society of Edinburgh, ix, 312.
of the Lyceum of New York, see *Lyceum*.
of the Boston Soc. Natural History, see *Boston*.
Transit corrections, theory of, *E. F. Burr*, iv, 258.
Trap dykes of New England, *J. G. Percival*, iii, 390.
tuff of Connecticut valley, iv, 199.
rocks, Kerguelen's Land, vii, 318.
Trautvetter, Plantarum Imagines, &c., of, noticed, iii, 147,
Trees, fossil, Bristol, Ct., iv, 116.
Kerguelen's Island, vii, 318.
see farther, *Fossil*.
Tremolite, Jade allied to, ii, 267.
Trevelyan, W. C., boring power of snails, ii, 276.
Trevelyan's bars vibrating by galvanism, ix, 105.
Triarthrus Beckii, on the identity of, with, Atops trilineatus, v, 107, 322.
Trichroism of crystals, i, 267.
Trichostomum vaginans, i, 72.
Trieste, Society of Naturalists, iii, 451.
Trigonometry, a treatise on plane and spherical, by *W. Chauvenet*, noticed, x, 300.
Trilobites, note on, by *Burmeister*, i, 285.
in New York, iii, 61, 64.
large, of Ohio, vi, 431.

Trilobites, notice of, in the cabinet of *J. S. Taylor*, x, 113.
Trimorphism, an instance of, ii, 416.
Trinidad, observation on, vii, 315.
Tritomite, a new mineral species, x, 245.
Troglodytes gorilla, *J. Wyman* and *T. S. Savage*, v, 106, viii, 141, ix, 34.
Troost, G., on three varieties of meteoric iron, ii, 356.
meteoric iron of Murfreesboro', Tenn., v, 351.
on kraurite and cacoxene in Tennessee, v, 421.
geological survey of Tennessee, by, viii, 419.
obituary of, x, 298.
Troostite, ix, 409.
Tropidolepis scincicauda, vii, 202.
Trough, new mercurial, *Louyet*, ii, 265.
Trout of Swedish lakes, a salt water species, iii, 316.
Tubes in sandstone in Alabama, *A. Bigelow*, ii, 421.
Tuckerman, E., proposed work on Lichens, iii, 146.
synopsis of the Lichens of New England, v, 452.
on some New England plants, vi, 224.
American Species of Potamogeton, vii, 347.
Tungstates, analysis of, i, 108.
composition of, *A. Laurent*, vii, 281.
Tungsten, alloys of, *Percy*, vii, 276.
on the amid compounds of, x, 256.
Tuomey, M., cranium of the Zeuglodon, iv, 149, 283.
Report on South Carolina, reviewed, viii, 61.
on the Geology of Alabama, x, 299.
Turgite, a new mineral, ii, 415.
Turkey, Koordistan, mines, springs, &c., of, iii, 347.
J. Lawrence Smith, chemist and geologist in, iv, 449.
Turner's Chemistry, notice of, ii, 148.
Turpentine camphor, *J. C. List*, vii, 430.
Turtle, East Florida, ii, 46.
Tuscaloosa, coal field of, i, 371.
Tuscany, boracic acid lagoons of, ix, 431.
Tussock grass, viii, 168.
Twining, A. C., on the doctrine of parallels, i, 89.
note on his article on parallels, i, 147.
reply to a criticism on his demonstration relating to parallels, ii, 69.
Tycho-Brahe, relics of, discovered, i, 308.
Tyler, S., on philosophical induction, v, 319.
Tyndall, J., on the deportment of crystalline bodies between the poles of a magnet, ix, 414.
magneto-optic property of crystals, x, 393.
Type manufacture, viii, 292.
Types, new mode of making, vi, 287.

U.

Unger, distribution of palms in geological formations, ii, 133.
Unio abacoides, *S. S. Haldeman*, ii, 274.
Unionite, a new mineral, *B. Silliman, Jr.*, viii, 384.
United States Coast Survey, see *Coast*.
grain produced in, in 1847, vi, 288.
Ural Mountains, geology of, iii, 158.
diamonds and itacolumite in, ii, 119.
gold and platina in, ii, 120.
minerals of, ii, 120.
Uralorthite, crystallization of, viii, 125.
Uranium, atomic weight of, i, 262.
sulphate and carbonate of, v, 336.
coracite an ore of, ii, 173, vii, 434.
Uranus, researches on Neptunian theory of, *E. F. Burr*, vi, 236.
relations of, to Neptune, v, 435.
Urea in urine, *Hentz*, ii, 110.
new acid in human, i, 104.
of herbivorous animals, composition of, i, 264.
Urinary calculi in the Transylvania University museum, work on, by *R. Peter*, noticed, iii, 299, 451.
calculus, i, 263.
Utica, N. Y., cold of, vi, 296.

V.

Vail, A., on magnetic telegraphs, noticed, i, 150.
Valerianic acid, *Liebig*, ii, 112.
Valeronitrile, v, 118.
Valleys, formation of, *J. D. Dana*, ix, 48, 289.
Vanadate of copper, ii, 414.
Van Beneden, J. P., mode of reproduction in the inferior animals, v, 280.
list of works by him, v, 280, note.
Van Diemens Land, fossil trees of, viii, 18.
Vanilla, production of, in Europe, iv, 445.
Vanuxem, L., obituary of, v, 445.
cabinet of, for sale, ix, 147.
Vapor of water, tension of, *J. H. Alexander*, vi, 210, 317.
Variation of the moon's motion, i, 389.
of a differential coefficient of a function of any number of variables, *A. D. Stanley*, iii, 415.
Varley, Jr., improvements in the air-pump, x, 284.
Varnish for eggs, crabs, insects, &c., i, 265.
Varrentrapp and *Will's* method for nitrogen improved, *E. N. Horsford*, iv, 267.
Vaux, Wm. S. large crystals of sphene, ix, 430.
Vega's Thesaurus Logarithmorum, errors in, v, 309.
Vegetable bases, how affected by the bicarbonates, i, 260.
Kingdom, *Lindley's*, noticed, ii, 152.
Vegetation, influence of protoxyd of nitrogen on, iii, 425.
Veins, titaniferous, in the Alps, ix, 122.
Velocity of sound, on theory of, *E. W. Blake*, v, 372.
Ventilation of apartments, ii, 412.
Venus, Gilliss's expedition for observing, to determine solar parallax, vi, 143.
Verds, Cape, notes on, iv, 123.
Vermiculite, analysis of, ix, 422.
Vermont, Geological survey of, i, 310, 435.
report on Geology of, by *C. B. Adams*, noticed, iii, 144.
History of, by *Z. Thompson*, noticed, v, 301.

Vermont, height of mountains in, v, 301.
Verneuil, E. de, on the Fusulina in Ohio, ii, 293.
return to Europe, ii, 440.
review of Geology of Russia, iii, 153.
on the Palæozoic deposits of North America, v, 176, 359.
on the Parallelism of American and European rocks, vii, 45, 218.
Vertebrate skeleton, type and homologies of, *R. Owen*, iv, 123.
Vestiges of Creation, (Sequel,) reviewed, i, 250.
Vesuvian Meteorological Observatory, i, 308.
Vesuvius, eruption of, ii, 290, vii, 437.
Vibration of wires producing electric currents, i, 256.
of soft iron produced by galvanic current, i, 426.
of Trevelyan's bars, ix, 105.
Vidua albonotata, and concolor, vii, 115, 116.
Vinegar, arsenic in, iv, 272.
Virginia, gold mining in, vii, 295.
Vision, on single and double, *J. Locke*, vii, 68.
ibid. *S. P. Lathrop*, vii, 343.
Berkeley's theory of, *D. Brewster* on, vii, 273.
an unnoticed kind of abnormal, *C. Dewey*, viii, 113.
Vitrification, influence of boracic acid in, ix, 305.
Vivianite, composition of, ix, 84.
Volckner, chemical composition of the fluid in the ascidia of Nepenthes, ix, 119.
Vögeli, F., on phosphoric ethers, ix, 113.
Vogel's voyage to the Niger, notes from, iv, 119.
Voice, organs of, in man, viii, 287.
Volcker, phosphoric acid in natural waters, x, 412.
value of food varying with the amount of nitrogen present, x, 403.
Volatile oils of the Cruciferæ, iii, 425.
Volcanic mountains, origin of feldspathic centre of, *J. D. Dana*, ii, 348.
action, *Prevost's* views on, iii, 180.
dust of Hecla, iii, 272.
band nearly encircling the Pacific, iii, 398.
peak of Fogo, Cape Verds, iii, 432.
eruption at the Cape Verds, iv, 146.
of Hawaii, *J. D. Dana*, ix, 347, x, 235.
of Hecla, ii, 290, iii, 288.
of Vesuvius, iii, 290, vii, 437.
scoria of Kilauea, analyses of, ii, 273.
grit of Connecticut valley, *E. Hitchcock*, iv, 199.
plateaux of Caucasus, v, 423.
peaks of Western America, vii, 380.
rocks of Crozet group and other islands, *J. C. Ross*, vii, 317, *and beyond*.
Volcano in the Red Sea, iii, 273.
probable submarine in China Sea, iii, 273.
new, v, 422.
Rucu-Pichincha, exploration of, iv, 417.
Antarctic, vii, 328.
old, near Kilauea, Hawaii, *C. S. Lyman*, vii, 287.
Volcanoes, cause of position of, *J. D. Dana*, iii, 186.
ancient and extinct, *C. Daubeny's* work on, noticed, v, 446.
of the moon, *J. D. Dana*, ii, 335.
Völknerite, a new mineral, vii, 113, viii, 122.
Voltaic arc, molecular phenomena of, *De la Rive*, iii, 110.
see *Galvanic*.
Von Blucher, H., formation of lactic acid from cane sugar, i, 107.
Vorticose movements during earthquakes, remarks on, *R. Mallet*, ii, 270.
Vosgite, vii, 113.

W.

Wackenroder, H., preparation of salts of baryta and barytic water, vi, 423.
Wagner, on the solubility of chlorid of sodium in alcohol, v, 124.
Waldheim, F. de, jubilee in honor of, v, 301.
Wales, New South, rocks and valleys of, *J. D. Dana*, ix, 289.
fossils of, *J. D. Dana*, iv, 151, v, 433.
Walker, S. C., conclusion respecting Le Verrier's planet, iii, 441.
identity of Neptune with a star observed by Lalande, iv, 133.
elements of the planet Neptune, v, 153, vi, 277, 396.
galvanic register astronomical clock, vii, 206.
velocity of galvanic wave, viii, 142.
examination of Kirkwood's Analogy, x, 19.
report on the experience of the U. S. Coast Survey in regard to telegraph operations for the determination of longitude, x, 151.
Waltershausen's work on Etna, notice of, ii, 157.
Ward, on the cost of voltaic arrangements, ix. 111.
Warren, J. C., purchase of mastodon, i, 270.
Warrington, R., on testing astringent substances for tanning, vi, 112.
Warwickite, relations of, to Enceladite, ii, 30.
Washington, observations at the National Observatory of, noticed, iii, 150, 278.
Water of artesian well at Grenelle and Mondrof, i, 264.
decomposed by metals in presence of salts, i, 258.
frozen by air-pump without the aid of sulphuric acid, i, 265.
maximum density of pure, iii, 427.
raised by waves, iii, 449.
decomposing power of, at high temperatures, v, 266.
tension of vapor of, *J. H. Alexander*, vi, 210, 317.
analyses of several, *B. Silliman, Jr.*, ii, 218.
chemical examination of several from Hartford, Ct., *B. W. Bull*, iv, 385.
sea, analytical researches on, *Forchhammer*, iii, 289.
of the Mediterranean, analysis of, viii, 116.
of the Dead Sea, analysis of, viii, 444.

Water of the Tuscarora Sour Spring and other mineral waters of Canada, *T. S. Hunt*, viii, 364, ix, 266.
of Oak Orchard spring, analyses of, ix, 449.
alkaline springs, ix, 123.
of Schuylkill, analysis of, ix, 123.
of Firth of Forth, fluorine in, ix, 118.
containing boracic acid, ix, 431.
of towns, report on, *R. A. Smith*, vii, 279, x, 411.
Waters, mineral, determination of bromine in, *M. Heine*, ii, 113.
phosphoric acid in, x, 412.
on metals contained in v, 120.
Water and land on the earth, relative quantities of, *S. P. Rigand*, ii, 289.
Water spout, account of *E. Loomis*, iv, 362.
Water power of Europe, iv, 145.
Waterman, G., Jr., on foci of parabolas, i, 200.
Wave of translation, *W. Whewell*, vi, 115.
Wavellite in Georgia, viii, 275.
Waves, height of, *J. C. Ross*, vii, 316.
height of Atlantic, *Scoresby*, x, 386.
force of, in the Atlantic and German Oceans, ii, 139.
sea-water raised by, through valved tubes, iii, 449.
transporting power of, ii, 140.
of sound, refraction and diffraction of waves of, iii, 140.
Wax, constitution of, i, 117.
B. C. Brodie on, vii, 427, ix, 111.
Wealden, supposed birds bones in, i, 274.
Weather, on foretelling, and on the moon's influence on, *Arago*, iii, 141.
Websky, on magnesian idocrase, x, 251.
Webster, J. W., idocrase in Sandford, Me., vi, 425.
Webster's Dictionary, new edition by *Goodrich*, noticed, v, 147.
Weibye, S. H., on Tritomite and Catapleiite, x, 245.
description of Atheriastite and Eudnophite, x, 246.
Weidenbusch, H., mode of estimating sulphur in inorganic substances, vi, 422.
on aldehyde, viii, 268.
Weights, minute, mode of making, iii, 411.
of minute spheres of gold and silver, iii, 414.
and measures, Prussian standard fixed by *Bessel*, iv, 316.
Weisbach, J., Principles of Machinery and Engineering, viii, 455.
Weld, M. C., analysis of albite, viii, 390.
Welles, D. A., Annual of Scientific discovery, ix, 309, 454.
Werthein, on the composition and metamorphoses of piperine, x, 260.
Wetherill, C. M., analysis of a concretion from a horse's stomach, iv, 274.
Wetherell, C., on transformation of tannic acid into gallic acid, v, 121.
Whale fishery near Kerguelen's Island, vii, 319.
analysis of a calculus from the bladder of, ix, 118.
Whales in the Antarctic, vii, 324.
Wheat, development of vegetable matter in, *Boussingault*, iii, 106.
Whelpley, J. D., on philosophical induction, v, 33, 328.
views on atoms and ray-vibrations, ii, 401.
views on heat, ii, 401.
Whewell, method of measuring the heights of clouds, iii, 140.
anemometer of, modified, iii, 138.
refraction and diffraction of waves of sound, iii, 140.
wave of translation, vi, 115.
on Berkeley's theory of vision, vii, 274.
Whishaw, on gutta percha, vii, 276.
White Mountains of New Hampshire, geological age of, i, 411, v, 116.
Whitney, J. D., minerals from near Lake Superior, vi, 269.
examination of American minerals, vii, 433, 434.
on some silicates containing carbonic acid, chlorine and sulphuric acid, vii, 435.
on chloritoid and Masonite, viii, 272.
black oxyd of copper, Lake Superior, viii, 273.
Whittlesey, C., notes on the drift and alluvium of Ohio and the West, v, 205.
on a coal plant, viii, 375.
terraces on Lake Erie, x, 31.
Wight, Isle of, bones of Iguanodon, i, 275.
Wildenstein, R., dolomite from the Muschelkalk near Saarbrücker, x, 248
Wilkes, C., depth and saltness of the ocean, v, 41.
medal of Royal Geographical Society, awarded to, vi, 297.
Will, H., Outlines of the Giessen course of Qualitative Analysis, iv, 455.
Willemite, ix, 408.
William of Warren and his countess Gundreda exhumed, i, 146.
Williamsite, a new mineral, vi, 249.
Wilson, G., solubility of fluor spar and occurrence of fluorine in minerals, plants, animals, and natural waters, ii, 114, ix, 118, x, 413.
Wilson, T. B., donations to the Academy of Natural Science at Philadelphia, ii, 296.
Winds, nature, course, rates, &c., of, in hurricanes of the American seas, and other storms, *W. C. Redfield*, ii, 162, 311.
remark on cause of general, *W. C. Redfield*, iii, 283, 284.
of the northern hemisphere, *J. H. Coffin*, vi, 398.
and currents of the ocean, *M. F. Maury*, vi, 399.
of California and Oregon, vii, 389.
influence of course of, on climate, vii, 392.
seeds disseminated by, viii, 163.
variations in force of, for 1844, viii, 53.
see *Storm*.
Wisconsin, geological report of, ix, 306, i, x.
Wislizenus, A., tour by, in Northern Mexico, vi, 376.
Witting, on prussic acid, i, 105.
Wittstein, on the reduction of chlorid of silver, ix, 418.
quantitative determination of soda, and separation of, from potash, i, 110.
Wöhler, F., examination of the Castoreum, x, 259.
on benzoardic acid, i, 119.

Wöhler, F., Cryptolite, a new mineral, ii, 268.
an organic compound containing arsenic, viii, 269.
on the amid compounds of tungsten, x, 256.
and *Liebig*, on alkaloids from aldehyde, v, 122.
on the action of cyanic acid upon alcohol and aldehyde, v, 409.
Wolfram, analyses of, x, 254.
Wollaston Medal given to *Mr. Lonsdale*, ii, 440.
Wonders of Geology, by *G. A. Mantell*, noticed, v, 447.
Wood for railways, how preserved, i, 301.
petrified, in Texas, ii, 124, 359.
mode of rendering incombustible, viii, 118.
see *Trees*.
Wood, E. T., on Shea butter and vegetable tallow, ix, 116.
Woodbridge, W. C., notice of death of, i, 152.
Woodbury, D. P., papers on practical engineering by, noticed, i, 150.
Woody fibre, action of nitric acid on, ix, 20.

WORKS NOTICED.
Abert, J. W., Tour on Rocky Mountains, iii, 301.
New Mexico, vi, 376.
Adams, C. B., Report on Vermont, i, 310, iii, 144.
Contributions to Conchology, ix, 133, 458.
Agardh, J. G., on Algæ, viii, 453.
Agassiz, L., works, ii, 309.
Principles of Zoology, vi, 151.
Bibliographia, iii, 302, vii, 454.
on Embryology, viii, 156.
Lake Superior, ix, 455, x, 83.
Alger's, Phillips Mineralogy, i, 148.
Annals of the Lyceum of New York, see *Lyceum*.
Ansted, D. T., works of, iv, 300, x, 144.
Austin, T., on Crinoidea, ii, 446.
Babbage, C., Temple of Serapis, vi, 152.
Bache, A. D., Girard College, Magnetic and Meteorological Observations, vii, 455.
Baird, W., British Entomostraca, x, 145.
Balfour, J. H., Manual of Botany, viii, 303.
Barrande, J., Silurian System of Bohemia, viii, 158.
Beck, L. C., adulterations of Medicines, ii, 446.
Bibliothèque Universelle de Genève, i, 453.
Bird, G., Natural Philosophy, vi, 153.
Blum, J. R., on Pseudomorphism, vi, 267.
Boston Journal of Natural History, see *Boston*.
Botany of Russian Empire, iii, 309.
Boué, A., Geological Chart of the Globe, i, 310.
Bowman, J. E., Chemistry, vii, 455.
Brocklesby, Elements of Meteorology, vi, 299. 299.
Brodie, P., on Fossil Insects, i, 150.
Bronn, Index Palæontologicus, x, 145.
Browne, D. J., Trees of America, ii, 442, iii, 146.
Cameron, P., Nautical Slide Rule, viii, 309.
Carpenter, W. B., Elements of Physiology, ii, 147.

WORKS NOTICED.
Chambers's Ancient Sea Margins, vii, 1, viii, 33, 86.
Channing, W. F., Medical Application of Electricity, viii, 308.
Chase, S., Algebra, x, 147.
Chauvenet, W., Trigonometry, x, 300.
Chenu, Illustrations Conchyliologiques, v, 459.
Christy, D., Letters on Geology, vi, 298.
Coast Survey, Report, v, 299.
Colthurst, Scale of Heights, ix, 456.
Craig, English Dictionary, viii, 309.
Cullum, G. W., Military bridges, viii, 307.
Dalyell, J. G., Rare and Remarkable Animals of Scotland, vi, 452.
Dana, J. D., Report on Zoophytes, i, 149, 178, viii, 455, ix, 294.
Report on Geology, of, viii, 454.
Manual of Mineralogy, vi, 302.
System of Mineralogy, x, 138.
Dana, S. L., Lead Diseases, vi, 299.
Darlington, W., Agricultural Botany, iv, 451.
Bartram and Marshall, viii, 456, ix, 85.
Darwin, C., on South America, iii, 120, 146.
Davis, D., Manual of Magnetism, v, 150, viii, 308.
Daubeny, on Volcanoes, v, 446.
DeBow's Commercial Review, vi, 298.
Decandolle's Prodromus, v, 449, vii, 309, viii, 300.
Delessert, Icones Selectæ Plantarum, ii, 445.
D'Orbigny's works, i, 279, 309, ii, 299, iv, 452.
Dexter, W. P., Tabulæ Atomicæ, x, 298.
Drake, D., Climate and Diseases, &c., of the West, ix, 456.
Draper, J. W., Chemistry of, ii, 445.
Dreier's Carices, ii, 302, iii, 148.
Edwards, M., Researches on the Coast of Sicily, &c, x, 303.
Emerson, G. B., Trees and Shrubs of Massachusetts, iii, 310.
Emmons, E., Agricultural Journal, ii, 147.
Emory, W. H., Tour across Rocky Mountains, vi, 376.
Encyclopedia Americana, 14th volume, iii, 145.
Endlicher, Flora Brasiliensis iii, 147.
Genera Plantarum, ix, 148.
Coniferæ, ix, 148.
Espy, J. P., Report on Meteorology, i, 143.
Fisher, G. T., Manipulations in the Scientific Arts, ii, 148.
Fisher, R. S., Book of the World, viii, 156.
Fremont, J. C., Expedition to the Rocky Mountains and to Oregon and California, i, 149, iii, 192.
on Upper California, vi, 376.
Fresenius, C. R., on chemical analysis, iii, 149.
Geological Journal, London, iv, 450.
Gerhardt, C., Organic Chemistry, iii, 145, iv, 93, 171.
Gillespie, W., Road Making, iv, 148.
Gilliss, J. M., Magnetic and Meteorological observations at Washington, i, 143.
Astronomical Observations, iii, 149.
Gmelin, L., Chemistry, vii, 456.
Gould, B. A., Astronomical Journal, ix, 151, 309, x, 148.

WORKS NOTICED.
Gray, Asa, Chloris Boreali-Americana, iii, 151, 302.
Manual of Botany. iii, 454, v, 297, 377.
Genera Illustrata, vi, 300, viii, 452.
Gray, Alonzo, Natural Philosophy, ix, 308.
Griffith, R. E., Medical Botany, iv, 147.
Universal Formulary, ix, 457.
Griffiths, T., Chemistry of the Seasons, iii, 145.
Griffith, W., Posthumous Papers, vii, 454.
Guyot, A., Earth and Man, viii, 158, x, 161.
Huckley, C. W., Algebra, iii, 310.
Haidinger, W., work of, vi, 154.
Hale, H., Ethnography of Exploring Expedition, i, 149, 302, 317.
Hall, J., New York Palæontology, v, 149.
Harris, J., Man Primeval, ix, 456.
Harvey, W. H., works of, i, 454, viii, 453.
Hassall, British Algæ, i, 454.
Heck, G., Iconographic Encyclopædia, viii, 451, ix, 151.
Henfrey, A., Botany of, ii, 444.
Hermannsen, A. N., list of Genera of Malacozon, vi, 151.
Herschel, J. F. W., Outlines of Astronomy, viii, 456.
Hildreth, S. P., Pioneer History, viii, 157.
Hitchcock, E., Elementary Geology, iv, 146.
Holbrook, J. E., Southern Ichthyology, i, 455.
Hooker's works, i, 454, iii, 147, 310, v, 453, vii, 452, viii, 161.
Hunt, F., Merchant's Magazine, x, 148.
Jackson, J. R., Minerals and their uses, x, 147.
Jenkins, T. A., Light Houses, iii, 301.
Jenyns, L., Observations in Natural History, ii, 446.
Jobert, A. C. G., works, vii, 150.
Johnston, A. K., Physical Atlas, ix, 454.
Journal of the Academy of Natural Sciences of Philadelphia, see *Academy*.
Jussieu, A. de, Elements of Botany, viii, 303.
Keyserling, Petschora-Land, iv, 419.
Knapp, F., Chemical Technology, viii, 156, 308.
Koninck, L. de, Researches on Fossils, vi, 454.
Kunze's Carices, ii, 301.
Kützing, F. T., on Algæ, viii, 454.
Lamont, J., Magnetic Observations, i, 141.
Lea, T. G., Plants of Ohio, viii, 302.
Ledebour, Flora Rossica, i, 454, iii, 148, v, 453.
Lee, T. J., Geodetic tables, &c., viii, 306.
Leonhard, K. C. von, Taschenbuch etc., iii, 149.
Liebig, J., Chemistry of food, vi, 149.
Lindley's Vegetable Kingdom, ii, 152.
Logan, W. E., Report on Canada, viii, 154, ix, 12.
Loomis, E., Algebra of, ii, 298.
Lyell, C., Geology, iv, 147.
Lynch, W. F., Dead Sea Expedition, viii, 317.
Mantell, G. A., works of, ii, 149, iv, 230, v, 393, 447.
Martius on Palms, i, 454, ii, 152.
Matteucci, Lectures on Living Beings, v, 390.
WORKS NOTICED.
Maury, M. F., Astronomical Observations, iii, 150.
Sailing Directions, ix, 308.
McCulloch, Report on Sugar, viii, 150.
McMurtrie, H., Dictionary of Scientific terms, iv, 454.
Michelotti, Die Rizopodi etc , i, 149.
Mitchell, O. M., on the Cincinnati Observatory, i. 297.
Mohr, Pharmacy, viii, 150.
Mordecai, A., Report on Gunpowder, viii, 309.
Mortillet, G., Les Alpes, x, 303.
Muller, J., Physics and Meteorology, v, 302.
Murchison's Russia, ii, 152.
Naturalist, Tennessee, ii, 147.
New York Scientific Reports, i, 43, 310, iii, 57.
Nicol, J., Manual of Mineralogy, viii, 159.
Nightuck, G., Hints to Young Architects, iv, 302.
Noad, H. M., Chemical Analysis, viii, 151.
Norton, J. P., Scientific Agriculture, x, 146.
Owen, D. D., Geological Reports, i, 455.
Chippewa Land District, ix, 306, x, 1,
Owen, R., British Fossil Mammals, ii, 148, ix, 149.
on the Nature of Limbs, viii, 152.
Palmer, A. H., on the East, vii, 148.
Peter, R., Urimry Calcult, iii, 299.
Pickering, C., Races of Men, ix, 307.
Piddington, H., Horn-Book of Storms, vii, 144.
Ralfs, J., British Desmidieæ, vi, 302.
Regents of University of New York, Report of, vi, 298.
Reid, W., on Storms, viii, 455.
Ross, J. C., Antarctic Voyage, vii, 313, viii, 14,
Russian Magnetic and Meteorological Annual Report, i, 139, 140.
Sartwell, H. P., Carices exsiccatæ, vi, 149.
Sertum Petropolitanum, iii, 146.
Sidereal Messenger, ii, 442.
Silliman, B., Jr, Chemistry of, iii, 144.
Skinner, T. S., Plough, Loom and Anvil, ix, 309.
Smith, H. L., Natural Philosophy, iv, 302.
Smyth, T., Unity of Human Races, x, 143.
Southern Journal of Medicine and Pharmacy, i, 312.
Spencer, J. A., The East, ix, 456.
Stanley, A. D., Tables of Logarithms, v, 145.
Storer, D. H., Fishes of North America, ii, 456.
Strickland, H. E., The Dodo, vii, 52.
Strzelecki's New South Wales, i, 278.
Sullivant's Musci Alleghanienses, i, 70.
Taylor, R. C., Statistics of Coal, vi, 150.
Thompson, Z., History of Vermont, v, 301.
Transactions of the Linnæan Society, London, v, 451.
Trautvetter, Plantarum Imagines, etc., iii, 147.
Tuckerman, E., Lichens of New England, v, 452
Tuomey, M., Report on South Carolina, viii, 61.
Report on Alabama, x, 299.
Turner's Chemistry, ii, 148.

WORKS NOTICED.
Vail, A., American Electro-Magnetic Telegraph, i, 150.
Verneuil, E. de, Geology of Russia, iii, 153.
Vestiges of Creation, i, 250.
Waltershausen's Etna, ii, 157.
Webster, N., English Dictionary, v, 147.
Weisbach, J., Mechanics of Machinery, &c., viii, 155.
Wells, D. A., Annual of Scientific Discovery, ix, 454, x, 149.
White, A., Crustacea of the Samarang, x, 148.
Will, H., Chemical Analysis, iv, 455.
Wislizenus, A., Tour to Northern Mexico, vi, 376.
Wyman, J. on Comparative Physiology, viii, 157.
Young, A. Jr., Flora of Maine, v, 453.
See further, i, 455, ii, 153, 302, 446, iii, 150, 311, 455, iv, 148, 303, 455, v, 151, 304, 460, vi, 155, 303, 455, vii, 151, 311, 456, viii, 159, 310, 457, ix, 152, 312, 457, x, 149, 303.

World, Old and New, Observations on the Physical Features and Relations of, by *A. Guyot*, x, 161.
Wren, new species of, *Cabot*, vi, 136.
Wright, A. H., notices of Koordistan, iii, 347.
Wurtz, A., preparation of hypophosphite of baryta, ii, 112.
on some new compounds of phosphorus v, 116.
action of potash on Caffeine, ix, 419.
on compound ammonias, ix, 281.
researches on leucine, criticised, ix, 63.
Wurtz, H., on Melanolite, x, 80.
new mode of decomposing silicates, x, 323.
green-sand a source of potash compounds, x, 326.
Wyman, J., on a new species of Troglodytes, v, 106, viii, 141, ix, 31.
on Ne-hoo-le, or Manatus nasutus, ix, 45.
notice of Owen's Contributions, ix, 149.
bones from Memphis, Tenn., x, 56.
vertebrated animals from Richmond, Va., x, 228.
Lectures by, on Comparative Anatomy, noticed, viii, 157.

X.

Xylite, a new mineral, ii, 413.
Xyloidine, iii, 102, 259, 295.
Pyroxyline, and some analogous products, v, 265.

Y.

Yale College, J. P. Norton and B. Silliman, Jr., appointed to professorships in, iii, 451.
Yolk of egg, composition of, i, 264.
Young, A., a Flora of Maine, v, 453.
Yttrotantalite of Ytterby, viii, 126.
Yvon Villarceau, elements of the planet Iris, v, 135.

Z.

Zeolite, red, from near Upsala, Sweden, analyses of, x, 250.
Zeuglodon, geological position, i, 313.
remains of, in Alabama, *S. B. Buckley*, ii, 125.
Zeuglodon remains, remarks on, with figures of skull and tooth, *B. Silliman, Jr.*, ii, 129.
cranium of, *M. Tuomey*, iv, 283.
J. Müller on, iv, 421.
C. S. Hale, vi, 361.
Zinc, atomic weight of, i, 104.
dimorphism of, vi, 255.
mode of dividing plates of, ii, 262.
new mode of amalgamating, *O. N. Stoddard*, vii, 431.
action of anhydrous sulphuric acid with, viii, 271.
hydrated valerianated, viii, 272.
electricity of, when buried in the earth, ix, 1.
red ore of, ix, 424.
fabrication of, not injurious to health, x, 276.
Zircons, new earth discovered in, i, 257.
Zoological Gardens, London, noticed, ix, 304.
Zoological Journal, American, noticed, x, 287.

ZOOLOGY.
Principles of Zoology, by *Agassiz* and *Gould*, noticed, vi, 151.
Animals, circulation and digestion in, *Agassiz*, x, 123, 273.
circulating fluid in a Planorbis, red, i, 442.
views on classification, *J. D. Dana*, i, 286.
ibid. *Barry*, vi, 433.
relations of, to the elements in which they live, *L. Agassiz*, ix, 369.
relations to geological epochs, *L. Agassiz*, i, 280.
hybridity of, iii, 39, 203.
formations of cells in, *Coste*, i, 281, 436.
homologies of skeleton, *Owen*, iv, 123.
mode of reproduction in lower, *Van Beneden*, v, 280.
vertebrated, of Virginia, fossil, *J. Wyman*, x, 228.
of Tennessee, *J. Wyman*, x, 56.

MAMMALIA.
Mammals, classification of, *M. Edwards*, v, 428.
of Australia, i, 129.
and birds of Australia, low state of development of, x, 124.
fossil bones of, from Texas, *W. M. Carpenter*, i, 244.
of Tennessee, x, 56.
five new, *J. L. LeConte*, v, 102.
Antelope, new, from Africa, v, 279.
Basilosaurus, *J. Müller*, iv, 421, see *Zeuglodon*.
Bat, a new, *E. Hallowell*, ii, 273.
Beaver, in the United States, iii, 434, iv, 285, vi, 297, x, 56.
Castor and Castoroides, of Tennessee, x, 56.
Cervus, species of, iii, 436.
Cetacean bones in Vermont, *Z. Thompson*, ix, 256.
Elephant bones in Vermont, *Z. Thompson*, ix, 256.
Russian, or mammoth, *R. Owen*, iv, 13.
Harlanus, new genus of fossil Pachyderms, iii, 125.
Hippopotamus of Sierra Leone, iii, 125, viii, 152.

MAMMALIA.
Manatus nasutus, *J. Wyman*, ix, 45
Mastodon giganteum, ii, 131.
of Tennessee, i, 214, x, 57.
of New York, i, 268.
food of, iii, 436.
Mastodon angustidens, ix, 304.
Megalonyx of Tennessee, x, 56.
Moose and Carabou, *L. Agassiz*, iii, 436.
Otters in Massachusetts, vii, 117.
Palæotherium, fossil, of the West, ii, 288, iii, 248.
Poebrotherium, genus of fossil Ruminants, *J. Leidy*, v, 276.
Sea elephant, vii, 317.
Seals, fossil, Virginia, *J. Wyman*, x, 229.
Tapir, fossil, American, i, 247, ix, 140.
Troglodytes, new, *J. Wyman*, v, 106, viii, 141, ix, 34.
Zeuglodon remains, ii, 125, 129, iv, 283, 421.

BIRDS.
Birds, hybrids among, *S. G. Morton*, iii, 203.
Mexican, *G. A. McCall*, vii, 114.
new, *J. Cassin*, vii, 115.
fossil, of New Zealand, i, 129, v, 134, 431, vii, 28, 151, ix, 147, 437.
Anser, new species, *G. N. Lawrence*, iii, 435.
Chamæa, new genus of birds, *W. Gambel*, iv, 286.
Columba, new, *G. A. M'Call*, iv, 421.
Condor of the Cordillera, iv, 447.
Cymindis Wilsonii, *J. Cassin*, iv, 285.
Dodo, *H. E. Strickland*, iv, 422, vii, 52.
Embryo-Birds, feet of, vi, 432.
Oyster catcher, vi, 433.
Procellaria, new, *G. N. Lawrence*, iii, 436.
Pyranga roseo-gularis, *Dr. Cabot*, iii, 436.
Sterna cantica, *Dr. Cabot*, vi, 136.
Wren, new, *Dr. Cabot*, vi, 136.
Fossil footprints of, see *Footprints*.

FISHES.
Fishes, water tubes in, vi, 431.
on statics of, *Müller*, iii, 276.
new, from Lake Superior, *Agassiz*, x, 125.
new fossil, from the Palæozoic rocks of Indiana, *J. G. Norwood* and *D. D. Owen*, i, 367.
fossil, of Australia, *J. D. Dana*, v, 433.
characteristics from fins of, *Agassiz*, i, 440.
Storer's Synopsis of North American, ii, 145.
Hybodus, fossil shark, i, 280.
Squalidæ, fossil, of United States, *R. W. Gibbes*, vii, 441.
Trout of Swedish Lakes a saltwater species, iii, 316.

REPTILES.
Reptiles of Oregon, *A. J. Skilton*, vii, 202.
Cheirotherium, of Pennsylvania, ii, 25, ix, 124.
Eryx maculatus, *E Hallowell*, ix, 137.
Ichthyosaurus, embryo of, i, 276.
Iguanodon, i, 275, vi, 429, vii, 150, 438, 439.
Minhocão of the Goyanes, iv, 130.
Pelorosaurus, *G. A. Mantell*, ix, 147, 439.
Plesiosaurus megacephalus, *S. Stutchbury*, iii, 276.
Salamanders, new North American, *S. F. Baird*, ix, 137.
Spondylosaurus, i, 440.

INSECTS AND CRUSTACEA.
Insects of Mexico, *S. S. Haldeman*, v, 435.
Entomology of United States, history of, *J. G. Morris*, i, 17.
Crustacea, remarks on some, *L. R. Gibbes*, x, 122.
classification of, *J. D. Dana*, i, 225.
homologies in, viii, 284.
of the Samarang, work by *Adams* and *White*, x, 148.
Amphipoda, *J. D. Dana*, x, 123.
Aphides, ii, 427.
Apus, new, *J. LeConte*, ii, 274.
Atops trilineatus, v, 107, 322.
Balanus, eyes of, *J. Leidy*, vi, 136.
Cicada septendecim, iii, 216, 218.
Coryceæus, on eyes of, ix, 133.
Cyclopacea, genera of, *J. D. Dana*, i, 225, viii, 276.
Entomostraca of Exploring Expedition, *J. D. Dana*, viii, 276.
Entomostraca, work on British, by *W. Baird*, noticed, x, 145.
Entophytes, *J. Leidy*, ix, 441.
Gammaracea, synopsis of genera of, *J. D. Dana*, viii, 135, 428, ix, 295.
Hemiptera and Hymenoptera, new species of, *S. S. Haldeman*, ix, 108.
Isopoda of Exploring Expedition, *J. D. Dana*, viii, 424.
Lepidoptera, organ of sound in, *S. S. Haldeman*, v, 435.
Locustæ, wings of, iii, 125.
Noctuela, genus of Crustacea, *J. D. Dana*, x, 122.
Oithona plumifera, *W. Baird*, x, 123.
Orchestidæ, new genus of, *J. D. Dana*, ix, 295.
Sapphirina, &c., eyes of, *J. D. Dana*, ix, 133.
Schizopoda, of Exploring Expedition, *J. D. Dana*, ix, 129.
Trilobites, i, 285, v, 107, 322, vi, 431.

MOLLUSCA.
Mollusca, boring of, i, 130, vii, 288.
olfactory sense in, iii, 434.
Shells, microscopic structure of, i, 283.
of Connecticut, collected by *J. H. Linsley*, vi, 233.
recent, of Florida, *T. A. Conrad*, ii, 36, 393.
miocene and living, *Conrad*, i, 404.
freshwater, of Rockbridge Co., Va., *T. A. Conrad*, i, 405.
supposed new, *W. Case*, iii, 101, 276.
of the Eocene, *T. A. Conrad*, i, 209, 395, ii, 399.
new, contributions by *C. B. Adams*, noticed, ix, 133, 458.
fossil, of New York, iii, 57 *et seq.*, 170.
of Columbia river, *T. A. Conrad*, v, 432.
of Australia, *J. D. Dana*, iv, 151, v, 433.
see farther, *Fossil*.
Argonauta argo, vi, 137.
Belemnites, i, 285.
Belemnite and Belemnoteuthis, *G. A. Mantell*, ix, 438.
Fusulina in Ohio, ii, 293.
Haliotis, new, *C. B. Adams*, vi, 138.

Limnæus stagnalis, ear of, iv, 131.
Nummulina, structure of, *W. B. Carpenter*, x, 275.
Orthoceras, supposed impression of soft parts of, vi, 132.
Polythalamia, fossil, soft bodies of, preserved, ii, 275, v, 70.
of South Carolina, iv, 453.
geographical distribution of, and notice of *D'Orbigny's* work on, iv, 452.
Spirula, animal of, *J. E. Gray*, i, 131.
Stoastoma, new genus of shells, *C. B. Adams*, ix, 133.
Thoracoceras, of the family of orthoceratites, i, 440.

RADIATA, INFUSORIA.
Acalephæ, memoir on, by *L. Agassiz*, noticed, x, 272.
Asterias, fossil, palæozoic of Ohio, i, 441.
Astræa, remarks on genus, *J. D. Dana*, ix, 295.
Corals, fossil, genera of Cyathophyllidæ, *J D. Dana*, i, 178.
on some tertiary of United States, iv, 357, 359
Echinoderms, fossil palæozoic, of St. Louis, Mo., ii, 225.
Eocene, United States, *S. G. Morton*, ii, 273.
Melonites multipora, ii, 225, iii, 124.
Navicula Spencerii, v, 443, vii, 265, ix, 23.
Pygorhynchus Gouldii, a fossil echinus, *M. Bouré*, iii, 437.
Sponge, ii, 194, vi, 277.
Sponges, freshwater, of Bombay, *H. J. Carter*, x, 301.
Infusoria in guano, i, 442, 452.
of tertiary of Maryland, *J. W. Bailey*, vii, 437.
of Oregon, ix, 140.
of Florida, *J. W. Bailey*, x, 282.
on the teeth, *H. J. Bowditch*, ix, 442.
of volcanic rocks, i, 123.
Zoophytes, ii, 64, 187, iii, 1, 160, 337, iv, 359.
Report on, by *J. D. Dana*, noticed, i, 149, 178, viii, 455, ix, 294.

Zuccarini, analogy between flora of Japan and United States, ii, 135.
Zygadite, a new mineral, viii, 124.

GENERAL INDEX

OF

VOLS. XI—XX, SECOND SERIES.

A.

Abacus, by *Rainey*, noticed, xi, 448.
Abich, on Mt. Ararat, xiii, 269.
Academy of Natural Sciences, Philadelphia,
Journal of, noticed, xi, 149, xiii, 303.
Officers of, for 1851, xi, 295.
Proceedings of, xi, 151, 304, 450, xii, 304, 454, xiii, 152, 304, 450, xiv, 152, 296, xv, 303, 304, 466, xvi, 152, 304, xvii, 152, 455, xviii, 160, 304, 451, xix, 152, 296, xx, 152, 304.
Report of Librarian and Curators of, for the year 1850, xi, 293.
Acad. Nat. Sci. of San Francisco, Proceedings of, xix, 296.
Academy of Sciences, Paris, xv, 109. xvi, 114, 268, 406, xvii, 116, 262, 412, xviii, 114, 431, xix, 103, 407, xx, 142, 258. 406.
election of a perpetual secretary, xvii, 262.
elections to, xvii, 414, xviii, 381.
prizes of, xiv, 289, xvii, 412.
Acclimation, Society for, xvii, 414, xix, 108, 410, xx, 405.
of Angora goat, xx, 405.
Acid, acetic, action on homologues of, xi, 107.
from seaweeds, xii, 117.
alizaric, xi, 110.
amylo-sulphuric, xi, 254.
anhydrous organic, *Gerhardt*, xiv, 260.
anthranilic, xvi, 412.
benzoic, xvi. 412.
alcohol of, xvii, 428.
boracic, xi, 109, xvi, 114.
camphoric, xvi, 415.
caprinic, aldehyd of, xi, 420.
capronic, xi, 254.
caprylic, alcohol of, xii, 432.
carbonic, in sea waters, xvi, 362.
physiological effects of, xx, 260.
apparatus for, Mayer, xix, 422.
chloro-naphthalic, xi, 110.
cuminic xi, 116.
cyanhydric, xi, 112.
ferrocyanhydric, preparation of, xvii, 125.
fluohydric, vessels for preserving, xvii, 127.
hippuric, products of decomposition of, xiv, 100, xvii, 429.
regeneration of, xvi, 414.
homolactic, *Clöz*, xiv, 102.
Acid, metacetic, xvi, 102.
naphthionic, xi, 111.
nitric, known to the ancient Egyptians, xvi, 296.
nitro-hippuric, xi, 112.
nitrotartaric, derivatives of, xvii, 403.
œnanthic, xi, 254.
phosphoric, xi, 403, xiii, 114, 224, 333, xv, 275.
phthalic, xi, 110.
propionic, in fermentation, xviii, 413.
pyrogallic, in wood vinegar, xvii, 120.
racemic, from tartaric, xvi. 415.
source of, xvi, 101.
sulphuric, formation of, from sulphurous acid and oxygen, xiv, 99.
tannic, *Strecker*, xiv, 99, xviii, 412.
tartaric, transformed into racemic, xvi, 415.
thionaphthamic, xi, 111.
valerianic, from fusel oil, xvii, 124.
anhydrous, xv, 273.
cacodyle of, xv, 118.
Acids, anhydrous organic, *Gerhardt*, xiv, 260.
decomposition of some organic, xvi, 116.
Acoustic architecture, *J. B. Upham*, xv, 215, 348, xvi, 21.
Acoustics, practical, xx, 261.
Actiniæ of Falmouth, paper on, by *W. P. Cocks*, noticed, xiv, 293.
Adams, C. B, Contributions to Conchology, by, noticed, xi, 302.
views of, on geographical distribution of Mollusca, xiv, 389.
work by, on Panama shells, noticed, xiv, 452.
obituary of, xv, 292.
Adipocire, Wetherill on, noticed, xix, 452.
Aerometric Balance, *Potter*, xi, 114.
African geography, xi, 437, 438.
African lake, new, discovery of, xi, 438.
Agardh, Species, etc., Algarum, noticed, xv, 131.
Agassiz, L., on zoological classification, xi, 122.
animals of the Mammoth Cave, xi, 127.
Note on the Genus Haropsis, xiii, 425.
Infusoria, the larval state of intestinal worms, xiii, 425.
Planariæ, closely related to intestinal worms, xiii, 425.
Cuma the young of Macroura, xiii, 426.

Agassiz, L., researches of, xvi, 134.
notices of works on Geology, xvi, 279, 418.
notices of works on Zoology, xvi, 283, 427.
on viviparous fishes from California, xvi, 380.
on viviparous fish in Louisiana, xix, 133.
on Fishes from the southern bend of the Tennessee, xvii, 297, 353.
on Fishes of Western America, xix, 71, 215.
on the primitive diversity and number of animals in Geological Times, xvii, 309.
on Smithsonian Institution, xix, 284.
proposed work of, xx, 149.
Agassiz and *Gould's* Principles of Zoology, noticed, xi, 447.
Air in vegetable mould, composition of, xvi, 114.
Air-engine, see *Caloric*.
Airy, address of, before British Association, xii, 261.
Albuminizing photogenic glasses, xi, 279.
Alcohol, manufacture of, from wood, xix, 107.
production of, from Asphodel and Scilla, xix, 412.
butyric, *Wurtz*, xv, 112, xix, 268.
of benzoic acid, xvii, 428.
of caprylic acid, xii, 432.
preparation of methylic, *Wöhler*, xiv, 98.
artificial, from olefiant gas, xx, 111, 264.
Aldehyd of caprinic acid, xi, 420.
Alder and *Hancock*, work by, on British Nudibranchiate Mollusca, noticed, xiii, 303.
Alexander, J. H., meteorological coincidences, xii, 1.
on Hassler's experiments on the expansion of water, xvi, 170.
Alexander, S., memoir by, on nebulæ, noticed, xv, 300.
Algæ, on antheridia in, xv, 455.
work on, by *W. H. Harvey*, noticed, xiv, 1.
Algeria, industry and productions of, xix, 108.
Algol, on the variable star, *F. Argelander*, xix, 344.
Alizarine, xi, 110.
Alkalies, *Ebelman* on, xii, 281.
on determining, *J. L. Smith*, xvi, 53.
Alkaloid from piperine, xiv, 100.
Alkaloids, homologous with ammonia, *Wurtz*, xii, 115.
new, xvii, 123.
in opium, xv, 428.
of the quinquinas, xvi, 414.
Allen on Victoria regia, noticed, xviii, 428.
Allotropic condition of phosphorus, xi, 255.
Almond, bitter, action of oil of, on animal system, xi, 116.
Alps, *R. I. Murchison*, on the former changes in, xii, 245.
physical geography of, *Schlagintweit*, xiv, 359.
height of perpetual snow in, *Roret*, xix, 290.
Alter, D., on certain properties of light, xviii, 55, xix, 213.
Altona Observatory, Dr. Petersen appointed to, xi, 442.
Altitudes, see *Heights*.
Aluminum, preparation and properties of, xvii, 427, xviii, 119, xix, 106, xx, 103, 109, 258.
preparation of, by electric deposition, xvii, 427.
Amber, on fossil plants in, xviii, 287.
America, climatology of Arctic, xiii, 439.
American Academy of Arts and Sciences, Proceedings of, xiv, 296, xviii, 160.
memoirs, new series, vol. v, part i, noticed, xvi, 151.
American Association, meetings at Albany and Cincinnati announced, and list of officers, xi, 442,
proceedings of meeting at Cincinnati, xii, 141.
proceedings of meeting at Albany, August, 1851, xii, 305, xiv, 452.
notice of Cleveland meeting, xvi, 289.
list of papers read at Washington meeting, 1854, xviii, 143.
list of papers read at Providence, Aug. 1855, xx, 289.
American Philosophical Society of Philadelphia, proceedings of, xi, 304.
Transactions of, xiv, 293, xvii, 296.
American Polytechnic Journal, xv, 154, 302.
Amid compounds of cyanogen, xi, 419.
Amids, cyanic and cyanuric, xix, 113.
Ammonia in rain-water, xvi, 407, xvii, 265.
on alkaloids homologous with, *Wurtz*, xii, 115.
action of sulphite of, *Piria*, 111.
Ammoniacal compounds of cobalt, xiii, 115.
Ammonias, on series of, *Hofmann*, xii, 428.
on the compound, *T. S. Hunt*, xiii, 206.
Amphitrite, a new planet, (29), xviii, 137, 290, xix, 446.
Amyl-oxyd, bimucate of, *S. W. Johnson*, xix, 423.
Analysis of asphaltic coal of New Brunswick, xi, 292.
of minerals, see *Minerals*.
of a copper chisel from Peru containing tin, xi, 317.
of limestone, *L. D. Gale*, xi, 4.
of emery and associated minerals, *J. L. Smith*, xi, 53.
of pitchstone porphyry and phosphorite, xi, 401.
of teas, xi, 219.
of waters, xi, 281.
separation of potash and soda in, xi, 257.
employment of hydrogen in, xi, 253.
determination of phosphorus in, *Reynoso*, xiii, 114.
ibid, *W. J. Craw*, according to Sonnenschein's method, xiii, 393.
of snow and rain-water, *E. Marchand*, xiv, 263.
of soils of Scioto Valley, *D. A. Wells*, xiv, 11.
on removing sal-ammoniac in, *J. L. Smith*, xv, 94.
Deville's method in, xv, 112.
process in, by *Fordos* and *Gelis*, xv, 112.
on determining the alkalies in minerals, *J. L. Smith*, xv, 231, xvi, 53.
of fossil bones, *F. V. Greene*, xvi, 16.
method of volumetric, xvii, 125.
determination of manganese, xvii, 126.

Analysis, separation of manganese from iron and nickel in, *T. Schiel*, xv, 275.
use of hydrogen and carbonic acid in, *Rogers*, xviii, 213.
test for zirconia in, xviii, 415.
on Fuchs' method for iron, xviii, 227.
Analytical Chemistry, *W. Gibbs's* contributions to, xiv, 204.
determination of arsenic in organic substances, *Schneider*, xiv, 259.
Geometry, *B. Sestini's* Treatise on, noticed, xiv, 453.
Anastatic process, method of preventing forgery by, xv, 144.
Anatomy and Physiology, *W. I. Burnett's* notices in, xvi, 251, 393, xvii, 89, xviii, 104.
Anderson, on Codein, xii, 116.
Andes, barometric anomalies about, *M. F. Maury*, xix, 385.
Andrand's engine, xv, 422.
Andrews, new mode of determining the moisture of the air, xii, 419.
Andrews, J. W., barometric observations to White Mts., xi, 138.
Anemometer, electro-magnetic, xvi, 107.
Anesthesis, local, xvii, 468, xviii, 122.
of Bees, xix, 412.
Anesthetic action, xi, 287.
properties of Lycoperdon, xvi, 272.
Angora goat, acclimation of, in Europe, xx, 405.
Anhydrous organic acids, *Gerhardt*, xiv, 260.
Animal substances, preservation of, *H. Goadby*, xii, 378.
Animalcule, Pamphagus, a new genus of, *J. W. Bailey*, xv, 341.
Animalcules, notice of Pritchard on, *J. W. Bailey*, xv, 299.
Animals of British seas, ranges in depth, *Forbes*, xiii, 125.
freezing of, xiii, 84, 143, 438.
Anisol and homologues, theory of, xi, 422.
Annals of the Lyceum Nat. Hist. N. York, noticed, xi, 149, xii, 151, xiii, 303, xiv, 294, xvi, 303, xviii, 160.
Annals of Science, noticed, xv, 153, xvii, 296.
Astronomical Observatory, Georgetown College, D. C., xv, 154.
Annual of Scientific Discovery, noticed, xi, 447, xiv, 148, xvii, 454.
Ansted's Scenery, Science, and Art, noticed, xviii, 448.
Antimony, fluorid of, xv, 273.
Aphides, on viviparous, *W. I. Burnett*, xvii, 62, 261.
Appleton's Mechanic's Magazine, noticed, xiv, 149.
Apteryx of New Zealand, xi, 434, xiii, 300.
Aquarium, manufactured sea-water for, xviii, 133, 293, xix, 146.
Arabia, notes on, xiii, 134.
Arabic method of notation, *T. H. McLeod*, xix, 48.
Arabs free from leprosy, xiv, 289.
Arago's works, publication of, xvii, 263, xviii, 120, xix, 413.
monument to, xix, 416.
obituary of, xvii, 113.
Ararat, Mt., *Abich*, xiii, 269.
height of, xviii, 440.
Archiac and *Haime* on Nummulites, noticed, xiii, 449.
Architecture, acoustic, *Upham*, xv, 215, 318.
Archives de Physiologie, etc., of Bourchardat, noticed, xviii, 157.
Arctic basin, *Scoresby* on, xvi, 446.
Argelander, F., on Algol, xix, 244.
Aridium, on the supposed new metal, xii, 281, xvii, 122.
note on, *Morfit* and *Booth*, xvii, 274.
Arithmometer, Thomas's, xix, 409.
Arkansas, gold in, xii, 143.
Arsen-ethyls, *Landolt* on, xvii, 428.
Arsenic, determination of, in organic substances, *Schneider*, xiv, 259.
in cases of poisoning, xv, 119.
organic radicals, containing, xix, 270.
Arseniuretted and antimoniuretted hydrogen, in relation to toxicology, *Napoli*, xviii, 190.
Artesian well at St. Louis, xv, 460.
in Italy, temperature of, xviii, 424.
Artificial crystallization of some substances, *Ebelmen*, xiii, 110, 411.
of zinc oxyd about furnaces in New Jersey, xiii, 417.
dolomite, xvii, 128.
formation of diopside, molybdate of lead, aragonite, etc., xiv, 423, 424.
of minerals in furnaces, xii, 394, xvii, 128.
products of furnaces, *Hausmann*, xviii, 421.
magnets, xvii, 118.
seawater, xvii, 293, xix, 146.
Artillery in the 15th century, xix, 410.
Art's Echo of Science, noticed, xi, 148.
Ashes of certain teas, analyses of, xi, 249.
Asia Minor, emery of, xi, 53.
thermal waters of, *J. L. Smith*, xii, 10, 366.
Asphaltic coal of New Brunswick, xi, 292. xiii, 276.
Asphyxia, use of oxygen in, xviii, 122.
Association, see *American* and *British*.
Asteroid, see *Planet*.
Astronomical clock, new escapement for, xi, 406.
notices, xvi, 136, 389, 430.
observations made under the direction of *M. F. Maury*, noticed, xii, 149.
application of photography in, xx, 143.
observatories, effect of vibrations from carriages, etc., remedied, xv, 265.
observatory, *J. Campbell*, xvi, 62.
refraction, *Faye*, xix, 104.
Astronomy, work on progress of, by *E. Loomis*, noticed xi, 147.
Practical, of *E. Loomis*, noticed, xx, 300.
Atlantic dust-showers, xi, 373.
Atlas of North America, Lange's, noticed, xviii, 450
Atmosphere, clearness of, in Oroomiah, *D. T. Stoddard*, xix, 273.
electricity of, *L. Palmeiri*, xviii, 415.
polarization of, xix, 105.
Atmospheric magnetism, *M. Faraday*, xii, 69.
phenomena, variations of, *Dove*, xix, 31, xx, 397.
pressure, *Schlagentweit*, xix, 145.
pressure, effect of, on level of ocean, *Ross*, xix, 52.

Atmospheric, see further, *Barometric* and *Meteorological*.
tide, lunar, xiv, 438.
Atomic volume, note on, by *T. S. Hunt*, xv, 116.
volumes and weights, *Dumas*, xii, 275.
weight of barium, xiv, 261.
of bismuth, xii, 113, 281.
of magnesium, xii, 279.
of phosphorus, xiii, 260.
of sulphur, xiv, 261.
of tungsten, xii, 113.
weights, on *Berzelius's* researches on, xvi, 173.
of the elements, relations of, *J. P. Cooke*, xvii, 387.
Atoms, relation of specific heat to, xv, 110,
relations of specific volumes, xx, 407.
Attraction by electro-magnetism, *Dub*, xi, 418.
Audubon, J. J. obituary notice of, xi, 295
Aurora Borealis, Makerstoun observations on annual frequency, &c. of, xi, 140.
of September, 1851, *D. Olmsted*, xii, 442.
of September 29, 1851, *L. R. Gibbes*, xiii, 128.
ibid. *J. LeConte*, xiii, 152.
of February 19, 1852, *D. Olmsted*, xiii, 426.
D. Kirkwood, xiii, 430.
in Belgium, xiv, 289.
of 1850–1, Canada, *J. H. Lefroy*, xiv, 153.
in Canada, 1853, xvii, 288.
1854, xx, 141.
for 1853, in Vermont, xv, 386, 459, xvii, 446.
August 11, 1853, xvi, 288.
of September 2, 1853, *M. H. Boye*, xvi, 446.
seen at Perryville, *G. W. Wheeler*, xvi, 293
seen at Knoxville, xvii, 140.
light of, without polarization, xvi, 148.
theory of, xvi, 274.
theory of, *De la Rive*, xviii, 353.
Auroral beam of April, 1852, *E. C. Herrick*, xiv, 130.
bow, of June, 1852, *E. C. Herrick*, xiv, 131.
C. S. Lyman, xv, 55.
Australia, gold in, xii, 445, xiii, 118, 297, xvii, 279, xix, 289.
mass of gold from, xiv, 440, xvi, 298.
interior of, *A. Petermann*, xvi, 442.

B.

Bache, A. D., Report by, on Coast Survey, noticed, see *Coast Survey*.
on the tides at Cat Island, xii, 341, xiv, 346.
tides at Key West, xviii, 305.
use of the zenith telescope in determining latitudes, xiv, 191.
Buchman, J., on Unity of Human Race, noticed, xi, 302.
Bacon, J., on Cochituate water, xix, 261.
Bailey, J. W., reply to De la Rue on the Navicula Spenceri, xi, 82.
localities of Terpsinoe musica, xi, 85.
infusoria of the Southern ricefields, xi, 85.
Polythalamia in Florida, xi, 86.
Paludicella articulata, xi, 86.
circulation in Hydrocharis, xi, 86.
Bailey, J. W., observations on Diatomaceæ, xi, 349, 351.
new localities of fossil Diatomaceæ in California and Oregon, xvii, 179.
on distinguishing natural and artificial camphor, xi, 351.
infusoria in Hudson river ice, xi, 351.
test for sulphur, xi, 351.
notice of Pritchard on Animalcules, xv, 299.
on a new animalcule, xv, 341.
microscopic examination of soundings in the Atlantic ocean, xii, 132, xvii, 176.
on a mode of giving permanent flexibility to specimens, xviii, 100.
reply to W. H. Wenham, and on a new microscopic test-object, xix, 28.
Indicator for microscopes, xx, 58.
Bain's telegraph, xi, 79.
Baird's Christian Retrospect and Register, noticed, xii, 151.
Baird, S. F., on Serpents of New York, xviii, 448, xix, 453.
on fishes of New Jersey coast, noticed, xx, 303.
Baird and *Girard* on American Reptiles, noticed, xv. 465.
Baker, W., Monge on Statics, translated by, xi, 448.
Bakewell, F. C., on a copying electric telegraph, xii, 278.
Balances of Deleuil, Œrtling, &c., xii, 440.
Balloons, ascensional force of, in water, xvii, 118.
Banker's Magazine, noticed, xii, 302.
Baobab tree, xx, 132.
Barium, equivalent of, xiv. 261.
manufacture of, xx, 103.
Barnard, F. A. P., on the expenditure of heat in the hot-air engine, xvi, 218, 292, 431.
proposed modification of Ericsson's engine, xvi, 232.
on a method of taking Daguerreotypes for the stereoscope, xvi, 348.
theoretic expenditure of heat in the hot-air engine, xvi, 351.
on heated air as a motive power, xvii, 153.
on the comparative expenditure of heat in different forms of air engine, xviii, 161.
Barnard, J. G., demonstration of pendulum experiment, xx, 238.
Barnett on Storms, noticed, xvii, 454.
Barometric anomalies about the Andes, *M. F. Maury*, xix, 335.
observations from Albany to White Mts., *J. W. Andrews*, xi, 138.
pressure across South America, xvi, 295.
pressure, effect of, on level of ocean, *Ross*, xiv, 52.
See further, *Atmospheric pressure*, and *Meteorology*.
Barrande, Silurian System of Bohemia, xiii, 117.
Bartlett, W. H C., Elements of Natural Philosophy by, noticed, xi, 146, xiv, 452, xx, 417.
Elements of Analytical Mechanics, noticed, xvii, 271
Barton, E. H., Report by, on the Meteorology Vital Statistics, &c., of New Orleans, noticed, xiii, 449.

Baryta, manufacture of, from the carbonate, xvi, 276.
Bases, molecular structure of organic, xii, 428.
Bathygnathus borealis, a fossil reptile, *J. Leidy*, xix, 444.
Bats of Mammoth Cave, xi, 337.
Bayo, Geology of Spain, xi, 259.
Beach sandrock of coral, xi, 368.
Beale, L., on the microscope, noticed, xviii, 302.
Beauregard's engine, xv, 420.
Belleville's engine, xv, 419.
Bechi, on boracic acid compounds of Tuscany, xix, 119.
Beck, L. C.., obituary notice of, and list of works of, xvi, 149.
Becquerel, electricity of plants, xii, 83.
on electro chemical action, xviii. 382.
Beer, adulteration of, with strychnine, xiv, 422.
Beer's "Optik," noticed, xvii, 272.
Bees, anesthesis of. xix, 412.
Beke, C., on the Nile, xi, 433.
Bellona, a new planet, xviii, 137, 290.
Benoit on the Sliding Scale, noticed, xvii, 420.
Bentham, G., on the Arachis hypogæa, xx, 202.
Benzine for Greek fire, xviii, 383.
Benzoëoxyd and allied compounds, xviii, 412.
Benzoic acid. alcohol of, xvii, 428.
Benzoyl, nitruret of, formed from hippuric acid, xvii, 429.
Berkeley and *Curtis*, on Fungi, noticed, xvi, 428.
Berlin on zirconia, xvi, 412.
Berthelot, liquefaction of gases, xi, 252.
on phenomena of contact, xvi, 406.
process with glycerine, xvii, 267.
Bertoloni, A., Miscellanea Botanica of, noticed, xiv, 114, xx, 279.
Berzelius. biography of, *H. Rose*, xvi, 1, 173, 305, xvii, 103.
Bigelow, A., on mounds in Alabama, xv, 186.
Binney. A., on Terrestrial air-breathing Mollusces, noticed, xii, 450, xiv, 127.
Binocular vision, *W. B Rogers*, xx, 86, 204, 318—see further, *Stereoscope.*
Biological phenomena explained, *W. B. Carpenter*, xiv, 440.
Bird, wingless, xi, 286, 434.
Birds of New Zealand, xi, 434.
work on, by *J. Cassin*, noticed, xviii, 157.
Birt, H. R, zodiacal light, xv, 120.
Bischof's Lehrbuch, noticed, xviii, 426.
Theorie der Befruchtung, etc., noticed, xvi, 393.
Bismæthyl, *D. Breed* on, xiii, 404.
Bismuth, equivalent of, xii, 113.
ores at Haddam, Ct, xii, 220.
Bitter almond oil, action on animal system, xi, 116.
Bitumen springs in California, xix, 433, xx, 84.
Blake, E. W., on the flow of elastic fluids through orifices, xii, 186.
reply to Mr. Hendrick, xvi, 80.
Blake, J., on the diluvial deposits of California, xiii, 385.
Blake, W. P., biaxial character of some supposed uniaxial micas, xii, 6.
Blake, W. P., on a supposed chlorite, xii, 339.
notices of chlorite, sapphire, lievrite, ores of lead, &c., xiii, 116.
on zinc oxyd as a furnace product in New Jersey, xiii, 417.
mineralogical notices, xiv, 105.
on lanthanite, xvi, 228.
on an ancient lake in Colorado Desert, xvii. 435.
on quicksilver mine of California, xvii, 438.
on earthquakes in California, xviii, 151.
on gold and platinum of Cape Blanco, xviii, 151.
notes on California, xviii, 441.
elephant and mastodon of California, xix, 133.
notice of Geological Report of, xix, 433.
on gold region of California, and minerals, xx, 72.
on grooving rocks by sand in California, xx, 178.
Bland, T., on geographical distribution of Mollusca, xiv, 389.
Blood, fountain of, in Honduras, xviii, 439, xix, 287.
Blood-rain, infusoria in, xi, 372.
Blowpipe with india rubber barrel, xviii, 121.
Blue Licks spring, Kentucky, analysis of water of, xi, 284.
Bohemia, Silurian System of, *Barrande*, xiii, 117.
Boiling water for measuring heights, method of calculation, xx, 117.
Bond's comet of August, 1850, xi, 130.
Bond, G. P., on Saturn's rings, xii, 97.
Bond, W. C., a new ring of Saturn, xii, 133
Booth, J. C., on remingtonite, xiv, 48.
Boracic acid in mineral waters, xvi, 114.
compounds on the Tuscan Lagoons, xix, 119.
lagoons, xi, 199.
Borates, analysis of several native, *Bechi*, xvii, 129, xix, 119.
Bore of the Tsien-tang, xx, 305.
Boscovich's theory, *E. B. Hunt* on, xviii, 243.
Boston Journal of Nat. History, noticed, xi, 302.
Soc. Nat. Hist., Proceedings of, xi, 151, 304, 450, xii, 304, 454, xiii, 152, 304, 450, xiv, 152, 296, xv, 156, 304, xvi, 152, 304, xviii, 159, xix, 454, xx, 152, 304.
Botanical Bibliography, xiii, 42, 424, xiv, 114, 291, 427, xv, 129, 279, xvi, 129, 422, xvii, 132, 285, 443, xviii, 131, 284, 428, xix, 128, 439, xx, 129. 278.
Literature, notices of, *A. Gray*, xiii, 42.
specimens, mode of giving flexibility to, *Bailey*, xviii, 100.
necrology, see *Obituary.*
Botany.
Circulation in Hydrocharis, xi. 86.
New Fungi, *Curtis* and *Berkeley*, xi, 93.
Large trees in western N. York, xiii, 397.
Large tree of California, xvii, 440, xviii, 150, 286.
A. Gray on Menodora and Boliviana, xiv, 41.
Botany of Exploring Expedition, xviii, 132.
on some Nyctaginaceæ, xv, 319.

BOTANY.
A. Gray. on new Trichomanes, xv, 324.
on parasitism of Comandra umbellata, xvi, 250.
on genus Tetraclea, xvi, 97.
on Plantæ Wrightianæ, xvi, 426.
J. Torrey on Darlingtonia Californica, xvi, 425.
on Batis maritima, xvi. 426.
Cactaceæ of California, *Engelmann* xiv, 335, 446.
distortion of achenium in some Carex, *J. Carey*, xv, 22.
Caricography, *C. Dewey*, xviii, 102, xix, 252.
Lapham, on the grasses of Wisconsin, xix, 452.
fructification of Arachis hypogæa, *H. M. Neister*, xix, 212.
ibid, *G. Bentham*, xx, 202.
on antheridia in Algæ, xv, 455.
sexual organs in Cryptogamia, *Henfrey*, xiv, 378, xv, 25, xx, 276.
Wellingtonia of Lindley, xx, 281.
fertilization of ferns, xix, 128.
non-assimilation of nitrogen by plants, xix, 128.
on chlorophyll, *Mohl*, xx, 278.
seeds of Magnolia, xx, 279.
seeds, does sea-water kill, xx, 282.
the Vegetable individual, *A. Braun*, xix, 297, xx, 181.
on twist of trees, *A. Braun*, xx, 280.
Further, see *Plants* and *Fossil*.
Notices of works by—
Agardh, xv, 131.
J. F. Allen, xviii, 428.
Ann. des Sci. Nat., xviii, 285.
Babington, xiii, 49.
A. Bertoloni, xiv, 114, xx, 279.
Berkley and *Curtis*, xvi, 426.
Blume, xiii, 49.
Boissier, xiii, 48.
Brongniart, xiii, 44.
Choissy, xiii, 48.
H. Coultas, xvi, 151.
J. Darby, xx, 131.
Darlington, xvi, 129.
DeCandolle, xiii, 42, 150, xvii, 133.
Endlicher, xiii, 43.
von Esenbeck, xiii, 44, xviii, 284.
Fries, xiii, 44.
Gaudichaud, xiii, 47.
C. Gay, xiii, 48.
H. B. Geinitz, xix, 271.
J. H. Gladstone, xix, 130.
Goeppert, xviii, 287.
Griffith and *Henfrey*, xviii, 131, 285, xix, 130.
Green and *Congdon*, xix, 443.
Gümbel, xiii, 52.
Harvey, xiii, 53, xiv, 1, xvi, 422.
Oswald Heer, xv, 280.
A. Henfrey, xiv, 115, 378, xv, 25, xx, 276.
Hooker, xiii, 49, xv, 456, xvi, 132, xviii, 284, xix, 439.
W. Hofmeister, xvi, 131.
Junghuhn, xiii, 49, xviii, 428.
I. A. Lapham, xix, 442.
Lehmann, xiii, 49.
Lerebour, xiii, 44.
BOTANY.—Notices of works by—
Liebman, xv, 456, xviii, 284.
Lindley, xv, 280, xvi, 130, xvii, 133.
Linn. Trans., xiii, 51.
Kunze, xiii, 52.
Kützing, xiii, 52.
von Martius, xiii, 44, xv, 436, xix, 128.
Michaux, xiii, 450.
Mohl, xv, 279, 451, xvi, 131, xx, 278.
Montagne, xiii, 47.
K. Müller, xiii, 52.
Payer, xix, 129.
Pritzel, xx, 129.
Ravenel, xiv, 114, xvii, 285, xx, 284.
H. S. Reichenbach, xix, 443.
Richard, xiii, 48.
Sartwell, xv, 129.
H. Schacht, xv, 279.
B. Seeman, xiv, 428, xv, 133, xvii, 132, 285, xviii, 429, xix, 439.
Schlechtendal, xviii, 284.
A. J. Schleiden, xix, 129.
E. G. Steudel, xvii, 443, xviii, 428.
Spach, xiii, 47.
J. Torrey, xvi, 424, 426.
Trecul, xx, 278.
L. R. Tulasne, xv, 132, xix, 442.
Unger, xiii, 43.
De Vriese and *Harting*, xx, 131.
De Vriese and *Miquel*, xiii, 49, xviii, 428.
Walpers, xiii, 42, xv, 133.
Ward, N. J., xvi, 132.
Webb, xiii, 44.
Weddell, xiii, 44.
A. Wood, xx, 129.
Boulders transported by ice, *Perley*, xi, 425.
Boussingault, on the air in vegetable mould, xvi, 114.
on ammonia in rain-water, xvi, 407.
Economie Rurale, etc., noticed, xix, 151,
Boutigny, engine on principles of, xv, 420.
on the spheroidal state, and experiments by putting hand in melted iron, xii, 420.
Bowman, J. E., work on Medical Chemistry, noticed, xi, 147.
Boye, M. H., analysis of a nickeliferous magnetic pyrites, xiii, 219.
on Pneumatics, noticed, xx, 301.
aurora of Sept. 2, 1853, xvi, 446.
Brande. on Peat and its Products, xi, 440.
Ten Lectures by, noticed. xix, 295.
Brant, J. R., on Fuchs's method for the determination of Iron, xviii, 227.
Braun, A., on the Vegetable individual, xix, 297, xx, 181.
on the twist of trees, xx, 280.
Brazil, map of, by *Martius*, xviii, 156.
Bread, note on, xv, 267.
Wetherill's examination of, xx, 303.
Breed, D., on Bismæthyl, xiii, 404.
phosphoric acid in normal human urine, xiii, 224.
phosphoric acid in some of its relations to physiology and pathology, xv, 275.
Brewer's Guide to Scientific Knowledge of Things Familiar, noticed, xii, 303.
Brewster, D., on the form of images from lenses and mirrors of different sizes, xv, 121.
on Dove's theory of lustre, xv, 125.
on a tree struck by lightning, xv, 125.

Brewster, *D.*, on optical figures on disintegrated surfaces of crystals, xvi, 148.
on producing crystalline structure in crystallized powders by compression and traction, xvii, 275.
Bridges, oscillation of suspension, xiv, 447.
British Association, in 1851, proceedings of, xii, 261. 416.
meeting in 1852, xiv, 431.
expenses, xiv, 431.
address of Col. Sabine, xiv, 431.
notice of meeting for 1853, xvi, 447.
Bromine in ammoniacal liquids from manufacture of gas, xi, 209.
use of, in toxicological examinations, *H. Wurtz*, xi, 405.
separation of, from iodine, xvii, 119.
Brongniart, Arts Ceramiques, etc., noticed, xix, 151.
Bronze for sheathing of ships, xvi, 407, xvii, 419.
Brooke and Miller's Mineralogy reviewed, xv, 41.
Brucine, decomposed by nitric acid, xviii, 413.
Brush, *G. J.*, fluor of Illinois, xiv, 112.
reëxamination of American Minerals, xv, 207, xvi, 41, 365.
chemical composition of Clintonite, xviii, 407.
test for zirconia, xviii, 415.
on Prosopite, xx, 273.
Buch, von, obituary of, xv, 464.
eulogy on, xvii, 1.
Buckley, *S B.*, Notice of some large trees in New York, xiii, 397.
Buckleya, on the Genus, *A. Gray*, xviii, 98.
Buff, *H.*, law of intensity of magnetism, in soft iron, xi, 106.
electrical properties of flame, xiv, 88.
Building stones, strength of, *W. R. Johnson*, xi, 1.
Bulletin of Geol. Soc. of France, extracts from, xiii, 267.
Bunce, *J. B.*, volatility of phosphoric acid, xi, 403.
on Schmidt's process for determining nitrogen, xi, 404.
Bunker Hill Monument, motion in, from sun's heat, xiv, 443.
Bunsen on chemical affinity, xvii, 122
Buren and Isaac's Illustrated Manual of Operative Surgery and Surgical Anatomy, noticed, xiv, 151.
Burnett W. I., on microscopes and microscopy, xii, 56.
Relations of Embryology and Spermatology to some of the fundamental doctrines of physiological science, xiii, 281.
relations of cells to the physical and teleological views of organization, xv, 87.
Reviews and abstracts in Anatomy and Physiology, xvi, 251, 393, xvii, 89, xviii, 104
on the blood-corpuscle-holding cells, and their relation to the spleen, xvi, 375.
on spermatozoa, etc., xvi, 393.
notice of Paget's Lectures, xvi, 428.
on viviparous Aphides, xvii, 62, 261.
on muscular tissue, xvii, 89.
Translation of v. Siebold and Stanius's Comparative Anatomy, noticed, xvii, 285.
Burnett, *W. I.*, on the renal organs, xvii, 374.
on Florida, xvii, 407,
on Psorospermia, xviii, 104.
on the Mermithes, xviii, 107.
Life and writings of, xviii, 255.
Bushman's Physiology, noticed, xviii, 449.
Butter, constitution of, xvii, 124.
Butylic alcohol, xv, 112, xix, 268.

C.

Cabinet of minerals for sale, xi, 442, xvii, 292.
Cabot, Ibis guarauna in N. England, xi, 435,
Cacodyle series, *T. S. Hunt*, xiii, 206.
of valerianic acid, xv, 118.
Cactaceæ of California, *G. Engelmann*, xiv, 335, 446.
Cahours, action on homologues of acetic acid, xi, 107.
action of chlorine on propylene, xi, 108.
theory of, on anisol, &c., xi, 422.
alkaloid from piperine, xiv, 100.
on organic radical containing tin, xiv, 421.
Caillaud, on the perforation of rocks by Pholades, xiii, 287.
Calabria, earthquake in, xii, 443.
Calcium, manufacture of, xx, 103.
Calculating Machine, xix, 409, xx, 402.
Calculus of operations, *J. Patterson*, xi, 327.
California Academy of Natural Sciences, noticed, xvi, 298.
Almaden quicksilver mine, xvi, 137; xvii, 438. xx, 80.
bitumen in, xix, 433, xx, 84.
climate of, *Dr. H. Gibbons*, xiii, 434, xiv, 131, 283, xviii, 148, xix, 144, xx, 292.
on supposed Corallines of Desert in, xviii, 156.
on the diluvial deposits of, *J. Blake*, xiii, 385.
earthquakes in, xviii, 151.
geysers, *F. Shepherd*, xii, 153.
gold and platinum of C. Blanco in, xviii, 156, 441.
gold and minerals of, *W. P. Blake*, xx, 72.
infusoria of, *Ehrenberg*, xvi, 134.
ibid, *Bailey*, xvii 79.
ancient lake in Colorado Desert, *Blake*, xvii, 435.
notes on, *W. P. Blake*, xviii, 441.
mammoth trees of, xvii, 440, xviii, 151, 286.
volcanic springs in, *J. L. LeConte*, xix, 1.
grooving of rocks in, by sand, *Blake*, xx, 178.
Trask on Geology of, notice, xviii, 302,
Mammoth and Mastodon in, *Blake*, xix, 133.
Caloric engine, Ericsson's, xv, 284.
W. A. Norton on, xv, 393.
F. A. P. Barnard on, xvi, 218, 232, 292, 351, 431, xvii, 153, xviii, 161.
W. J. M. Rankine on, xvii, 274, xviii, 64, xix, 137.
engines in France, xv, 418, xx, 402.
Calvert, on preparation of chlorate of potash, xi, 109.

Camac. W., analysis of Fowlerite, xiv, 418.
Cambridge Observatory, xii, 295.
Camera, binocular, xv, 124.
Cambaceres, on the use of fatty acids for illumination, xvi, 114.
Campbell, J., on an astronomical observatory, xvi, 62.
Camphor, on distinguishing natural and artificial, xi, 351.
tree of Sumatra, xiv, 113.
Canada, Report of Geological Survey of, xi, 116.
gold of, xi, 117.
mineral springs of, xv, 129, xi, 174.
Lower Silurian reptile in, xii, 120.
Logan and *Salter* on rocks of, xiv, 224.
supposed reptilian footmarks in Silurian rocks of, admitted to be Crustacean, xiv, 454.
winter of 1851–2, *Lefroy*, xiv, 135.
meteorology of, see *Meteorology*.
meteoric iron of, *T. S. Hunt*, xix, 417,
Canadian Journal, noticed, xv, 154.
Candles, manufacture of, *W. Carpmael*, xiii, 139.
observations on, xiv, 32.
Cannons, coupled, xviii, 389.
when first used, xix, 410.
Calliope, new planet, xv, 283.
Caoutchouc, xvi, 277.
Carbonic acid apparatus, *A. M. Mayer*, xix, 422
in sea water, xvi, 362.
physiological effects of, xx, 260.
Carbonic oxyd absorbed by an ammonical solution of chlorid of copper, xi, 109.
new property of, xi, 114.
poisonous effects of, xviii, 120.
Carboniferous rocks in Rocky Mountains, xv, 127.
of Ohio, coal bed in, xii, 282, xv, 450.
of Oregon, Tertiary, xx, 298.
see farther, *Coal*.
Carbonizing wood by steam, xvi, 270.
Carey J., distortion of the achenium in a carex, xv, 22.
Carices, etc., of Sartwell, noticed, xv, 129.
distortion of the achenium in, xv, 22.
Caricography, *C. Dewey*, xviii, 102, xix, 252.
Carpenter, W. B., influence of suggestion in directing muscular movement, xiv, 440.
Principles of Human Physiology, noticed, xv, 301.
Principles of Comparative Anatomy by, noticed, xviii, 449.
Carus, Dr. J. V., System der thierischen Morphologie, noticed, xviii, 449.
Cassin J., Birds of California, etc., by, noticed, xvi, 287, xviii, 157, xix, 142.
Caswell, A., on a Reflecting Telescope, xiii, 129.
Cat Island, tides at, *A. D. Bache*, xii, 341, xiv, 346.
Cavendish Society, xiii, 144.
Cavern with Bones in France, *A. Daubrée*. xiii, 267.
Cave, Mammoth, *B. Silliman, Jr.*, xi, 332.
Caves in Indiana, xi, 283.
in the Tyrol, xiii, 267.
Cells, relations of, to the physical and teleological views of organization, xv, 87.
Cements, process for certain, xiii, 16, 22.
Cereus giganteus and other species, *G. Engelmann*, xiv, 335, 446, xvii, 231.
Chagos Bank, xii, 39.
Chalk about coral reefs, xiv, 79.
depth of ocean during formation of, xvii, 131.
Chambers, R., glacial phenomena near Edinburgh, xi, 119.
Chandler, A., donation by, to Dartmouth College, xi, 443.
Channing, W. F., Application of the Municipal Electric Telegraph to Fire alarms, xiii, 58.
Chapman, E. J., on the classification of silicates, &c., xiv. 267, 272.
Wilsonite, a Scapolite, xx, 269.
Charcoal formed by steam, xvi, 270.
Chart, *Maury's*, wind and current, noticed, xiii, 149.
of Gales and Hurricanes, xviii.
Isocrymal, xvi.
Further, see *map*.
Chatin on rain waters, xiv, 287.
Chemical affinity, xvii, 122.
changes, on the theory of, *T. S. Hunt*, xv, 150, 226.
composition and physical properties, relation between, *Dumas*, xix, 407.
forces, connection of, with polarization of light, *N. S. Maskelyne*, xii, 64.
constitution, relation of, to taste, *E. N. Horsford*, xii, 195.
homology, illustrations of, *T. S. Hunt*, xviii, 269.
reactions under high pressure, xvii, 267.
Chemistry, historical notices in biography of, *Berzelius*, xvi, 1, 173, 305, xvii, 103.
a perturbation of law of definite proportions in, *J. P. Cooke*, xx, 222.
Medical, of *J. E. Bowman*, noticed, xi, 147.
of Perfumery, *Hofmann*, xiii, 413.
Cherriman, J. B., on Kirkwood's Analogy, xiv, 9.
Chevreul, on chemical reactions important to health of cities, xvi, 112.
on dyeing, xvi, 268.
Chile, earthquake in, xii, 424.
China, coal of, *D. J. Macgowan*, xi, 235.
Eagre in, *D. J. Macgowan*, xx, 305.
Chinese horology, *D. J. Macgowan*, xiii, 241.
rice-paper plant, xiv, 114.
Chlorate of potash, preparation of, *Calvert*, xi, 109.
Chlorine, new mode of preparing, *Mauméné*, xiii, 412.
Chloroform, test of presence of, in human body, xi, 115.
use of, xvi, 272.
used in locomotion, xvi, 409.
Chloro-phosphuret of nitrogen, xi, 256.
Christian Retrospect and Register, *R. Baird's*, noticed, xii, 151.
Christison, Gamboge Tree of Siam, xiii, 137.
Chromate of potash, manufacture of, xvii, 269.
Church, A. E., Elements of Analytical Geometry by, noticed, xiii, 147.
Civilization, on centers of, *Mc Leod*, xx, 201.
Churns, atmospheric, xi, 296.

Cinchonine, xi, 420.
Cinnabar of California, xvi, 137, xvii, 438, xx, 80.
in Corsica, xii, 390.
Cirripedia, Darwin on, noticed, xiv, 125, xix, 272.
Cities, on chemical reactions important to health of, xvi, 112.
Citrate of lime, products of the fermentation of, xv, 427.
Clarke's British Marine Testaceous Mollusca, xix, 452.
Clarke, W. S., Report by, on meteoric irons, xv, 7.
Claudet, ammoniacal compound of cobalt, xiii, 115.
Cleghorn, H., on destruction of forests, xii, 422.
Cleveland, climate of vicinity of, xiii, 215, 293.
Climate, on changes of, *W. Hopkins*, xv, 72, 248, 334.
of California, xiv, 131, 283.
on winter of 1851–2 in Canada, *Lefroy*, xiv, 135.
of vicinity of Cleveland, Ohio, xiii, 215, 293.
of Egypt, notes on, xiii, 133.
of Nischne Tagilsk, xiii, 143.
of San Francisco, *H. Gibbons*, xiii, 434, xiv, 131, 283, xviii, 148, xix, 144, xx, 292.
See further, *Meteorology*.
Climatology of Arctic America, xiii, 439.
Clio, new planet, xi, 129.
Clock, new escapement for, xi, 406.
Clathropteris of Connecticut river sandstone, xx, 22.
Clouds, remarkable, xvi, 141, xx, 412.
Cloves, cultivation of, xii, 328.
Clöz, amid compounds of cyanogen, xi, 419.
on homolactic acid, xiv, 102.
Coal, brown, in Brandon, and fossil fruits, *E. Hitchcock*, xv, 95.
of Burdwan Mines, analysis of, *H. Piddington*, xiii, 118.
of China, *D. J. Macgowan*, xi, 235.
Hillsborough, xvii, 130.
near L. of the Woods, *H. R. Schoolcraft*, xix, 232.
of New Brunswick, called asphaltum, xi, 292, xiii, 276.
in New Zealand, xiv, 425.
and red sandstone, of North Carolina, *D. Olmsted*, xix, 430.
fields, origin of, and fossil reptile in Nova Scotia, *C. Lyell*, xvi, 33.
bed in Ohio, large, xii, 282, xv, 450.
fossil fish in, xii, 281, 282.
of Rhode Island, xi, 267.
of Bristol Co. and R. Island, *E. Hitchcock*, xvi, 327.
of Oregon, *G. Gibbs*, xx, 298.
resinous nature of, *J. E. Teschemacher*, xiv, 70.
Statistics of, *Taylor's*, noticed, xx, 275.
Coal-gas, observations on, xiv, 35.
on purification of, xi, 291.
Coal-period, vegetation of, *J. E. Teschemacher*, xii, 438.
Coan, T., on eruption of Mt. Loa in 1851, xiii, 395.
Coan, T., eruption of Mauna Loa, in 1852, xiv, 105, 219, xv, 63.
on Kilauea, xv, 63, xviii, 96.
Coast Survey, Report of the Secretary of the Treasury on, xi, 446.
Report for 1850 of Prof. *A. D. Bache* on, noticed, xi, 446, xii, 158;—ibid, 1851, xv, 465, xvi, 450;—ibid, 1852, xviii, 158;—ibid, 1853, reviewed, xviii, 200.
Cobalt, allotropic modification of oxyd of, xv, 120.
ammoniacal compounds of, xiii, 115.
new compound of, *St. Evre*, xv, 274.
passivity of, *J. Nicklès*, xvi, 347.
and nickel, separation of, xvii, 125.
Cochituate water, *A. A. Hayes*, xix, 257.
J. Bacon, xix, 251.
Cocinon, myriston and lauro-stearon, xv, 120.
Codeine, equivalent of, *T. S. Hunt*, xix, 416.
crystallization of, *J. D. Dana*, xix, 416.
constitution of, and products from, xii, 116.
Coffin, J. H., on winds of Northern Hemisphere, xviii, 445.
Coffin, W., effects of lightning, xiii, 134.
Cogswell, J., spring of Phipsburg, Me., xi, 137.
Collomb, noticed, xvi, 124.
Coloring material of flowers, xviii, 434.
principles of madder, xi, 109.
Colors, accidental, resulting from looking at white objects, *Seguin*, xiii, 441.
Columbium the true name of niobium, xviii, 392.
Comandra umbellata, parasitism of, *A. Gray*, xvi, 250.
Comet of Biela, xv, 135.
Bond's, of August, 1850, xi, 130.
Petersen's, xi, 130.
First of 1851, xiii, 127.
Second of 1851, xiii, 128.
Third of 1851, xiii, 426.
First of 1852, xiv, 130.
Second of 1852, and Secchi's, xiv, 430.
First of 1853, xv, 457, xvi, 137.
Second of 1853, xvi, 137, 430.
Third of 1853, xvi, 289, 431.
Fourth of 1853, xvi, 430.
Fifth of 1853, xvii, 286, 444.
First of 1854, xviii, 138.
Third of 1854, xviii, 290, xix, 447.
Fourth of 1854, xviii, 430, xix, 137.
new, Jan., 1855, xix, 447.
Dien's, xx, 137.
Schweitzer's, xx, 137.
Donati's, xx, 285.
Compass of tangents, xv, 266, 425.
self-registering, xv, 266.
Confectionary, substances used in flavoring, xiii, 413.
Congelation of plants, *J. LeConte*, xiii, 84, 195.
Cooke, J. P., relations and classification of the elements, xvii, 387.
new filtering apparatus, xviii, 127.
on stibiotrizincyle and stibiobizincyle, xviii, 229.
compounds of zinc and antimony and perturbation of law of definite proportions, xx, 222.

Conchology, Contributions to, by *C. B. Adams*, noticed, xi, 302.
Condensation of gases by solid bodies, xix, 111.
Contact, phenomena of, xvi, 406.
Copper, ductility of, affected by bismuth, xvii, 419.
used by the American Indians, xi, 314.
sheathing, on corrosion of, *A. A. Hayes*, xi, 241, 324.
mines of Tennessee, *M. Tuomey*, xix, 181.
J. D. Whitney, xx, 53
of Bristol, Ct., *B. Silliman* and *J. D. Whitney*, xx, 361.
ore beds of Spain, xi, 262.
volumetric determination of, xix, 269.
Coral island, Las Rocas, in the Atlantic, account of, xix, 449.
reefs and islands, *J. D. Dana*, xi, 357, xii, 25, 165, 329, xiii, 34, 185, 338, xiv, 76, xvi, 151.
of the Louisiade Archipelago, xi, 439.
of Florida Keys, *Tuomey*, xi, 391.
causes modifying forms of, *J. D. Dana*, xiii, 34.
origin of the Channels within barriers, and of the atoll form of islands, *J. D. Dana*, xiii, 185.
and Islands, on Geographical distribution of, *J. D. Dana*, xiii, 333.
on the supposed elevated, of Maui, xv, 450.
rock, consolidation of, *J. D. Dana*, xiv, 80, 410, xvi, 357, xix, 429.
ibid, *Horsford*, xiv, 245.
magnesian, of Pacific, *T. S. Hunt*, xix, 429.
Corallines of Colorado desert, on the supposed, xviii, 156.
Corals, new genera of fossil, *J. Hall*, xi, 398.
texture and composition of, *J. D. Dana*, xii, 173.
depth and range of growing, xii, 177.
Corenwinder, combinations of iodine and phosphorus, xi, 108.
Cornwall Polytechnic Society, Report of, noticed, xvi, 459.
Corrosion of copper sheathing, *A. A. Hayes*, xi, 241, 324.
Corundum, *J. L. Smith* on, xi, 53.
Cotta, eulogy on Von Buch, xvii, 1.
Cotton from pyroxyline, xvi, 406.
Courtenay on the Calculus, noticed, xx, 148
Cousin's History of Modern Philosophy, noticed, xiv, 150.
Craw, W. J., analysis of a phosphate, from Norwich, xi, 99.
analysis of Clinochlore, xiii. 222.
determination of phosphoric acid by molybdate of ammonia, xiii, 393.
Crawfishes, on habits of certain, xvii, 133.
Crenate of lime in stalactites, *D. A. Wells*, xiii, 11.
Cretaceous beds of the Red river region, xix, 437.
formation in Germany, *Geinitz*, xiv, 424.
rocks of Spain, xi, 263.
Crinoid, new genus, *Vandell*, xx, 135.
Crustacea of United States collections, *Gibbes*, xi, 128.
Crustacea in Cochituate water, xix. 261.
Geographical distribution of, *J. D. Dana*, xviii, 314, xix, 6, xx, 168, 349.
on neuters among, *Agassiz*, xvi, 136.
Report on, by *J. D. Dana*, noticed, xvi, 151, xx, 151.
new Brachyural near Trapezia, *J. D. Dana*, xi, 223.
carapax of Brachyural, *J. D. Dana*, xi, 95.
Cancroidea, classification of, *J. D. Dana*, xii, 121.
Choristopoda or Tetradecapoda, classification of, and new Genera, *J. D. Dana*, xiv, 297.
Corystoidea, classification of, *J. D. Dana*, xiii, 119.
new Cryptopodia, *J. D. Dana*, xviii, 430.
Grapsoidea, classification of, *J. D. Dana*, xii, 283.
list of new species of Grapsoidea described by *J. D. Dana*, xii, 439.
Genus Heterograpsus of Lucas, xiii, 124.
Hexapus and Arges, two genera of, xii, 291.
Maioidea, classification of, *J. D. Dana*, xi, 425.
Maioidea, note on, *J. D. Dana*, xii, 131.
Genus Orthostoma and the Telphusidæ, xiii, 123.
Paguridea, Megalopidea and Macroura, *J. D. Dana*, xiii, 121, xiv, 116.
new genus and species of, *J. Eights*, xv, 135.
habits of certain Crawfishes, xvii, 133.
Cryptogamia, on sexual organs in, xiv, 378, xv, 25, 465, xx, 276.
Crystal Palace, Exhibition in London at, *W. Gibbs*, xii, 440.
Playfair's lecture on exhibition at, xiv, 19.
Royle's lecture on, xiv, 160.
W. Whewell's lecture on the exhibition at, xiii, 352.
at Paris, xx, 110.
Crystallo-magnetic action, *Tyndall*, xv, 124.
Crystalline form of the rhombohedal metals, xii, 279.
structure produced by compression and traction, xvii, 275.
Crystallization in the dry way, researches on, *Ebelmen*, xiii, 110, 411.
of glass, xiv, 263.
and amorphism, *Frankenheim*, xiv, 264.
pseudomorphous, *Sillem*, xiv, 264.
isomorphism in, of some sulphates, *Hausmann*, xiv, 266.
isomorphism in, see further *Homæomorphism*.
Crystallizations of salts of peculiar perfection, xix, 107.
Crystals of a phosphate from Norwich, xi, 100.
isomorphous, optical properties of, *Senarmont*, xiii, 409.
on lettering figures of, *J. D. Dana*, xiii, 399, xiv, 280.
of regular system, on double refraction produced in, by compression, *Wertheim*, xiii, 411, xv, 111, 426.

Crystals, transmission of radiant heat through, *Knoblauch*, xiv, 97, xix, 110.
on optical figures produced by the disintegrated surfaces of, *Brewster*, xvi, 148.
of sulphate of iodo-quinine, preparation of, for optical purposes, xvii, 423.
screw form of calcite, xx, 251.
regular arrangement of pyrites in, xx, 252.
See further, MINERAL, and *Dana*.
Cuba, hail in, xix, 290.
Cuminic acid, action on animal system, xi, 116.
Cunningham, W. C., sea temperature, in the Pacific, xv, 66.
Currents of the ocean, xvi, 318.
of North Atlantic, *Scoresby*, xvi, 438.
magneto-electric, xviii, 264.
see further, *Galvanic* and *Electric*.
Curtis, M. A., new Fungi, xi, 95.
Cyanhydric acid, action of, on aldehyde ammonia, xi, 112.
Cyanine, xviii, 434.
Cyanogen, amid compounds of, xi, 419.

D.

Dacota Language, notice of C. R. Riggs's Grammar and Dictionary of, xix, 450.
Dagg, J. L., demonstration of pendulum experiment, xix, 280.
Daguerreotype Handbook, *S. D. Humphrey's*, noticed, xvi, 451.
Daguerreotypes by electric light, xiii, 143.
by galvanic light, *B. Silliman, Jr.*, xi, 417.
for the stereoscope, a method of taking, *F A. P. Barnard*. xvi, 348, 447.
Daguerrian Journal noticed, xi, 148.
Dalton, J. C., on the Proteus anguinus, xv, 387.
Dalyell, J. G., death of, xii, 302.
Damour, on Descloizite, xvii, 434.
Dana, J. D., on the carapax of crabs, xi, 95.
crystallography of a phosphate from Norwich, xi, 100.
on Labradorite of Maui, xi, 121.
on pendulum experiment, xii, 200.
on heteronomic isomorphism, xii, 204.
mineralogical notices by, xi, 225, xii, 205, 337, xiv, 264, xv, 430, xix, 353.
degradation on sea shores, xii, 334.
probable identity of Houghite and Völknerite, xii, 365.
crystallographic identity of Eumanite and Brookite, xii, 397.
Geographical distribution of Coral reefs and Islands, xiii, 338.
on lettering figures of Crystals, xiii, 399, xiv, 280.
Note on Hauslab's Crystal Theory of the Globe, xiii, 424.
on Humite, xiv, 175.
eruption of Mt. Loa in 1852, xiv, 254.
on some calcareous rock-formations, in reply to Prof. Horsford, xiv, 410.
gypsum in sea water, xiv, 417.
on changes of level in the Pacific, xv, 157.
Dana, J. D., of temperature as a cause limiting zoological distribution in depth in the sea, xv, 204.
note on Scacchi's crystals of Dimorphin, xv, 432.
figure of crystal of Clinochlore, xv, 436.
form of crystal of Algerite, xv, 440.
note on Triplite of Norwich, xv, 445.
on the crystallization of Chrondrodite, xv, 448.
note on crystallization of Tabular spar, xv, 449.
note by *C. F. Winslow*, to the paper on elevations in the Pacific, by, xv, 450.
isomorphism of Sphene and Euclase, xvi, 96.
on Coral Reefs and Islands, xi, 357, xii, 25, 165, 329, xiii, 34, 185, 333, xiv, 76, xvi, 151.
isothermal chart of the ocean by, xvi, 153, 314.
on the consolidation of Coral formations in reply to Prof. Horsford, xvi, 357, 447.
on a supposed change of ocean temperature, xvi, 391.
mineralogical contributions, xvii, 78, 210, 430.
notice of *Brooke* and *Miller's* Mineralogy, xvii, 78.
notice of *von Kobell's* Mineral Namen, xvii, 79.
on Haydenite of Cleveland, xvii, 82.
crystallization of Brucite, xvii, 83.
crystallization of Hydromagnesite, xvii, 84.
Gypsum and Heulandite, homœmorphous, xvii, 85.
homœmorphism of some minerals, xvii, 85, 86, 210, 430.
on Anhydrite, xvii, 88.
trimorphism of Calcite, Dreelite and Susannite, xvii, 210.
Datholite, crystals of, and homœmorphism with Euclase, xvii, 215.
isodimorphism of Calcite and Tourmaline, xvii, 216.
observations on the formulas and relations of some mineral species, xvii, 217, 275.
homœomorphism of hexagonal and dimetric species, xvii, 430.
on Prosopite, xvii, 452, xx, 274.
on the homœomorphism of minerals of the trimetric system, xviii, 35, 131.
ibid., of the dimetric and hexagonal systems, xviii, 131.
on the Chlorite section of hydrous silicates, xviii, 128.
on Wöhlerite and Keilhauite, xviii, 130,
on Leadhillite, xviii, 249.
on the so-called silico-titanates, xviii, 253.
on Tourmaline, xviii, 254.
on formula of Clintonite, xviii, 409.
figures of crystals of some minerals, xviii, 417.
notes on some furnace slags, described by Hausmann, xviii, 422.
notice of fourth edition of mineralogy by, xviii, 424.
Supplement to Mineralogy of, xix, 353.

Dana, J. D., notes on Aphrosiderite, Arsenomelan, xix, 355; Baltimorite, Biotite, Boltonite, 356; Chrysolite slag, 358; Euxenite, 360. Galactite, Hudsonite, 362; Hyalophan, Keilhauite, 363: Partschin, Phlogopite, 365; Serpentine pseudomorph, 368.
crystallization of Codeine, and a compound of grape sugar and common salt, xix, 416.
on Prosopite, xx, 274.
Brachyural Crustacea of Expl. Expd., xi, 95, 223, 268.
classification of Maioid Crustacea, xi, 425.
note on the Maioidea, xii, 131.
classification of the Cancroidea, xii, 121.
note on Hexapus and Arges, xii, 291.
classification of Crustacea Grapsoidea, xii, 283.
list of new Grapsoidea described by, xii, 439.
on the classification of the Crustacea Choristopoda, xiv, 297.
classification of the Corystoidea, xiii, 119.
Genus Heterograpsus, xiii, 124.
on the Genus Orthostoma and the Telphusidæ, xiii, 123.
Crustacea Paguridea, Megalopidea and Macroura, xiii, 121, xiv. 116.
new Cryptopodia, xviii, 430.
geographical distribution of Crustacea, xviii, 314, xix, 6, xx, 168, 349.
Report on Crustacea by, noticed, xvi, 151, xx, 151.
Daniel, strength of building stones, xi, 9.
Darby's, Botany of Southern States, noticed, xx, 131.
Darlington's Flora Cestrica, noticed, xvi, 129.
Darien, gold of Isthmus of, xi, 118.
Dartmouth College, donation to, for School of Arts, xi, 443.
Darwin, C., on Cirripedia, noticed, xiv, 125, xix, 272.
Daubeny, C., An introduction to the atomic theory, xiii, 303.
Daubrée, A., cavern with bones in France, xiii, 267.
Davis's Nautical Almanac, xiv, 317.
Davis, F. W., obituary notice of, xix, 448.
Day's Algebra, noticed, xiii, 444.
Dead Sea, analysis of water and sediments of, xix, 147.
coral in, xiii, 297.
features of valley of, xiii, 297.
Dean, J., on Tellurmethyl, xix, 318.
Deaths, see *Obituary*.
DeCandolle, A., on freezing of vegetables, xiv, 445.
DeCandolle, A. P., Biography of, by *De La Rive*, noticed, xiii, 150.
DeCandolle's Prodromus, noticed, xiv, 291, xvii, 133.
Declination, method of recording differences in, *O. M. Mitchel*, xiii, 1.
Degradation on seashores, *J. D. Dana*, xii, 334.
Dekay, J. E., obituary notice of, xiii, 300.
De la Rive, see *Rive*.
Delesse, on the serpentine of the Vosges, xii, 216.
on mineralogy of granular limestone of the Vosges, xiv, 278.
on the Diorites of the Vosges, xiv, 279.
on globuliferous rocks, xvii, 168.
on crystalline limestones and pyromeride of the Vosges, xvii, 127.
on the action of alkalies on rocks, xvii, 450.
Density of the earth, *Reich*, xiv, 98.
Denudation in Mammoth Cave, xi, 337.
Descloizeaux, on quartz, xx, 270.
Desor, E., drift of Lake Superior, xiii, 95.
parallelism of mountain chains in America, xii, 118.
on the Post-pliocene of the South, xiv, 49.
works by, noticed, xix, 453.
Dessaignes, on propylamine in plants, xiii, 114.
derivatives of nitrotartaric acid, xvii, 415.
Deville, H. St. C., on aluminium, xviii, 119.
on loss of weight of some minerals by heat, xviii, 269.
heating lamp, xviii, 391.
Dewey, C., on Caricography, xviii, 102, xix, 252.
Diamagnetic, see *Magnetic*.
Diamagnetism, *Tyndall*, xix, 24.
and magne-crystallic action, *J. Tyndall*, xii, 267.
Diamond, Kohinoor, xv, 144, xvii, 136.
on cutting, xvii, 138.
"Star of the South," xix, 288.
Diapason of Orchestras, rising of, xx, 262.
Diatomaceæ, *J. W. Bailey* on, xi, 349, 351.
in California and Oregon, xvii, 179.
Didymium, *Marignac* on, xvi, 413.
Dilatation, measure of, *Silbermann*, xviii, 388.
Dilatations, method of determining, xv, 113, 413.
Diluvial deposits or drift of California, *J. Blake*, xiii, 335.
Dimorphism, *Pasteur*, xviii, 433.
Dolomisation, *Delanoüe*, xix, 435.
Dolomitic coral limestone, xix, 429.
Donarium, new metal, xii, 280, 387, 433.
identical with thorium, xiv, 102, 260.
Dove, H. W., Temperature Chart of, xv, 459.
theory of lustre, examined, xv, 125.
Farbenlehre, etc., noticed, xvii, 272.
variations of atmospheric phenomena, xix, 31.
rains of temperate zone, xx, 399.
Downes, J., Occultations visible in the United States, by, noticed, xiii, 303.
Downing, A. J., Rural Essays of, noticed, xvi, 302.
Drake, *D.*, obituary, xv, 291.
Drew, on Meteorology, noticed, xx, 148.
Drilling holes in glass, mode of, xiii, 26.
Drift of Lake Superior, *E. Desor*, xiii, 93.
Hopkins on, noticed, xiv, 453.
Dub, laws of the attraction of electro-magnets, xi, 418, xvii, 424.
Dumas, on atomic volumes and weights, xii, 275.
relations between chemical composition and physical properties, xix, 407.
Dumoncel's anemometer, xvi, 107.
Dust, fall of, at Osterholz, xi, 143.

Dust-showers, infusoria and other organisms in, xi, 372.
Dyeing, observations on, xiv, 27.
researches on, *Chevreul*, xvi, 268.
wool, new red for, xviii, 123.

E.

Eagre of Tsien-tang, *Macgowan*, xx, 305.
Earl, G. W., work by, noticed, xvi, 450.
Earth, researches on mode of cooling, thickness of crust, &c., *H Hennessy*, xiii, 271.
mean density of, *Reich*, xiv, 98.
figure of, *H. Hennessy*, xv, 126.
Earthquakes, *Mallet* on, xii, 421.
Report on, *A. Perrey's* researches, xix, 55.
in Cambria, 1851, xii, 433.
in Chile, 1851, xii, 424.
near Fort Yuma, in 1852 (not '53), xix, 6.
on a supposed, at Lowville, N. Y., xvi, 294.
at Manilla, xvii, 135.
in New England, xv, 146.
city of San Salvador destroyed by, xviii, 277.
Ebelmen, on crystallization of some substances, xiii, 110, 411.
Echini, lithodomous, xix, 136.
Eclipse, total solar, of July 28, 1851, xii, 134, 300.
ibid, optical investigations connected with, xiii, 440.
annular solar, of May 26th, 1854, xviii, 128, 142.
Edinburgh New Phil. Journal, new series of, xix, 150.
Edmands, J., parallax of a star, xv, 457.
Edwards, on Palæozoic corals, noticed, xii, 449.
Egeria, new planet, xi, 129, 276.
Eggs, composition of, *Valenciennes* and *Fremy*, xix, 38, 238, xx, 65.
of fishes, when mature, xix, 412.
Egypt, notes on climate of, xiii, 133.
red syenite of, xii, 392.
Egyptians, *S. G. Morton's* views on the, xiii, 166.
nitric acid known to the ancient, xvi, 296.
Ehrenberg on dust showers, noticed, xi, 372.
on infusoria of California, xvi, 134.
infusoria of Mississippi river, xiv, 428.
Mikrogeologie, noticed, xix, 435.
on a fall of red snow in Switzerland, xiii, 442.
Eights, J., new species of Crustacea, xv, 135.
Electric current, law of induction of, on itself, *J. H. Lane*, xi, 17.
currents, thermic researches on, *Favre*, xviii, 124.
illumination, xviii, 385, 438.
induction, *Faraday* on, xviii, 84.
light, *M. Quet* on, xvi, 99.
machines, on inductive, xvi, 111.
telegraph applied to fire alarms, xiii, 58.
from Europe to Africa, proposed, xv, 270.
copying, xii, 273.
messages simultaneous in two directions, xx, 103.
Electrical machines, improvement in, xv, 268.
phenomenon, atmospherical, *H. Ware*, xix, 272.
Electrified bodies, chemical properties of, xiv, 101.
Electricity, Ruhmkorff's apparatus, xv, 114.
of plants, *Becquerel*, xii, 83.
contrary currents in same wire at same time, xviii, 118.
proportion of gases in decomposition of water by, xviii, 118.
origin of copper deposit, xviii, 118.
firing of mines by, xviii, 387.
of atmosphere, *L. Palmieri*, xviii, 415.
during evaporation of salt water, xviii, 384.
Electro-biological phenomena explained, *W. B. Carpenter*, xiv, 440.
-caloric engine of M. Andrand, xv, 422.
-chemical action, *Becquerel*, xviii, 382.
telegraph, xi, 288.
Electrolytic law, *Buff*, xv, 427.
Electro-magnetic currents, xviii, 264.
induction, xviii, 385.
machines, xi, 445, xviii, 264, 386.
telegraph, *Turnbull* on, noticed, xv, 153, xvii, 453.
-magnetism, method of recording differences in N. P. distance, by *O. M. Mitchell*, xiii, 1.
-magnets, circular, *J. Nicklès*, xvi, 110.
laws of the attraction of, xi, 418, xvii, 424.
a new kind of, *J. Nicklès*, xv, 104, 380.
-telegraphic progress, xiii, 300.
Electrotyping operations of the U. S. Coast Survey, xx, 305.
Elements, relations and classification of, *J. P. Cooke*, xvii, 387.
Elements of Analytical Geometry, by *A. E. Church*, noticed, xii, 449, xiii, 147.
Elephant, fossil, in California, xix, 133.
in 61° N. W. of Rocky Mts., xix, 132.
in Ohio, xv, 146.
Elevated coral islands, xii, 40.
Elevation of the Ohio river, xvi, 124.
Elevations in the Pacific, *J. D. Dana*, xv, 157.
further see *Heights*.
Ellery, J. G., Cotta's eulogy on von Buch, xvii, 1.
Emery and associated minerals, *J. L. Smith*, on, xi, 53.
Emmons on Agriculture, reviewed, xix, 247.
on American Geology, review of, xix, 397.
Engelmann, G., on the Cereus giganteus and other Cactaceæ, xiv, 335, 446, xvii, 231.
Engine of M. Andrand, xv, 422.
using the vapor of water at a high temperature, xv, 419.
of Beauregard, xv, 420.
See further, *Caloric*.
Engraving plates from ferns, &c., xi, 280, 441.
on copying copper plate, on stone, xiii, 292.
homœographic, xviii, 441.
photographic, xviii, 390.
Nature doing her own, xviii, 440.
Engravings reproduced by vapor of iodine, xvi, 113.
Entomology, new species in, *J. P. Kirtland*, xiii, 336.

Equivalents, see *Atomic weights.*
Erdmann, on the Dannemora iron beds, noticed, xiii, 449.
Ergot of Rye, &c., xix, 443.
Ericsson's Engine, see *Caloric.*
Erosion of rivers, xiv, 376.
Espy, J. P., Report by, on Meteorology, noticed, xiii, 450.
Ether, *Williamson* on, xi, 421.
used in locomotion, xvi, 408.
Ethers, researches on, *Berthelot*, xix, 112.
cyanic and cyanuric, xix, 113.
some new, *Clermont*, xix, 114.
Ethyl, action of light on iodid of, xii, 114.
telluret of, *Mallet*, xiii, 113.
Etna, an excursion on, *B. Silliman, Jr.*, xiii, 178.
Eunomia, new planet, xiii, 127.
Euterpe, new planet, xvii, 286.
Ewbank's World a workshop, noticed, xix, 453.
Exhibition in London, at Crystal Palace, see *Crystal Palace.*
Expansion by cold, *Rankine*, xx, 113.
Expedition around the world from Sweden, xii, 302.
Exploring Expedition, Siberian, 1853-5, xiv, 447.
Eye, refracting power, &c., of, *J. D. Forbes*, xiii, 413.

F.

Faber, W. L., on Carrollite, xiii, 418.
Falling bodies, resistance of air to, *Loomis*, xviii, 67.
Faraday, M., on electric induction, xviii, 84.
magnetic condition of nitrogen and oxygen, xi, 276.
relation of gravity and electricity, xi, 410.
magnetic and diamagnetic condition of oxygen &c., xi, 411.
magnetic conducting power and atmospheric magnetism, xi, 413, xii, 69.
on ozone, xiii, 261.
on lightning conductors, xix, 139.
Lectures, noticed, xix, 294.
Fat, constitution of human, *Heintz*, xiii, 260, xv, 428.
Fats, action of seminal fluid on, xix, 409.
Feejee Islands, map of, xiv.
Feilitzsch, magnetism in soft iron, xi, 105.
Ferns, fertilization of, xix, 128.
Filtering apparatus, new, *J. P. Cooke*, xviii, 127.
Fire alarms, electric telegraph applied to, *W. F. Channing*, xii, 58.
Fischer, T., works published by, xvi, 451.
Fischer, of St. Petersburg, death of, xviii, 429.
Fish-breeding, see *Pisciculture.*
eggs, see *Valenciennes.*
Fish, fossil, in the coal formation of New Brunswick, *C. T. Jackson*, xii, 281.
of Ohio, *J. W. Foster*, xii, 282.
tooth of, *J. M. Safford*, xvi, 142.
frozen, of northern New York, xvii, 291.
resuscitation of, xii, 291, xiii, 143, 438.
Fishes, note on researches on, by *Agassiz*, xvi, 134.
Fishes, viviparous, from California, *L. Agassiz*, xvi, 380.
in Louisiana, xix, 133.
Catalogue of Malayan, by *T. Cantor*, noticed, xiii, 303.
of Nova Scotia, and Labrador, *H. R. Storer*, xi, 129.
of the southern bend of the Tennessee, xvii, 297, 353.
of Western America, *Agassiz*, xix, 71, 215.
of the Winnipisseogee, *W. Prescott*, xi, 340.
of the New Jersey coast, *S. F. Baird* on, noticed, xx, 303.
Fizeau, velocity of current in telegraph wires, xi, 70.
Flame, electrical properties of, *H. Buff*, xiv, 88.
Flora Cestrica, *Darlington's*, noticed, xvi, 129.
of New Zealand, *Hooker's*, xix, 439.
of tertiary formation in Silesia, xiv, 281.
Floræ Danicæ, etc., xviii, 284.
Floral calendar at Beloit in 1850, xi, 348.
Florida, *W. I. Burnett* on, xvii, 407.
Keys, geology of, *M. Tuomey*, xi, 391.
reefs, on consolidation of rocks of, xiv, 245.
Flourens, on human longevity, noticed, xx, 302.
Fluids, flow of elastic, through orifices, *E. W. Blake*, xii, 186.
Fluohydric acid, vessels for preserving, xvii, 127.
Fluorine, attempts to insulate, xx, 109.
Foot-tracks on clay, *C. H. Hitchcock*, xix, 391.
Forbes, E., recent researches into the Natural History of the British Seas, xiii, 124.
foliation of metamorphic rocks, xix, 122.
original colors of fossil shells, xix, 126.
Professor at Edinburg, xviii, 156.
Uses of Museums, xviii, 340.
obituary, xix, 150, 290, xx, 375.
Forbes, J. D., on the eye, xiii, 413.
Fordos and *Gelis*, on sulphid of nitrogen, xiii, 114.
Forests, physical effects of destruction of, *H. Cleghorn*, xii, 422.
Forfar, R., Trinology of, noticed, xv, 153.
Forshey, C. B., shooting stars of August, 1848, 1849, xi, 133.
Fortuna, new planet, xv, 283, 457.
Fossil Botany, *Brongniart's* Geological dynasties of, xiii, 44.
bones, analysis of, *F. V. Greene*, xvi, 16.
Diatomaceæ in California, *J. W. Bailey*, xvii, 179.
Pelorosaurus, Belemnite, Belemnoteuthis, and Hylæosaurus, *G. A. Mantell*, xi, 299.
Iguanodon, xiv, 107.
Crinoid, *Yandell*, xx, 135.
fish of New Brunswick, *C. T. Jackson*, xii, 281.
of Ohio, *J. W. Foster*, xii, 282.
ichthyodorulite of the Niagara group, *J. Hall*, xvi, 128.
man and woman, supposed, xix, 448.

Fossil, new Graptolite from the Falls of the St. Croix, xi, 187.
on Graptolites, xiv, 128.
foot-tracks, Silurian, of Canada, supposed to be reptilian, admitted to be Crustacean, xiv, 454.
fruits, of Brandon, Vt., *E. Hitchcock*, xv, 95.
Saurian and footmarks of Pennsylvania, *I. Lea*, xiv, 451, xx, 301.
bones, probably reptilian, in coal rocks of Nova Scotia, xv, 279, xvi, 33, 283.
ibid, *J. Leidy*. xix, 444.
reptiles of Old Red Sandstone, *Mantell*, xiii, 278.
bones of Connecticut river sandstone, *J. Wyman*, xx, 395.
elephant, in Ohio, xv, 146.
elephant and mastodon, *Richardson*, xix, 131.
elephant and mastodon in California, xix, 133.
ox, &c., of America, *Leidy*, xv, 303, xvi, 281.
Palæotheria, &c., of Nebraska, *Leidy*, xvi, 281.
Pachydermata in Canada, xv, 282.
Mastodon, in Northern Illinois, *S. P. Lathrop*, xii, 439.
Warren on, xiv, 454, xv, 367, xix, 349.
J. Wyman on, xv, 48.
Dinornis, *Owen*, xii, 452.
shells, original colors of, *E. Forbes*, xix, 126.
coal plants, *H. B. Geinitz's* work on, noticed, xix, 271.
Trigonocarpon, coniferous, xix, 443.
plant of Connecticut river sandstone, *E. Hitchcock, Jr.*, xx, 22.
Fauna and Flora of the Wealden, *Mantell*, xiv, 107.
Flora of the Tertiary, xiv, 280.
Fossils, Catalogue of British, noticed, xix, 451.
of Dead Sea region, xix, 149.
of sandstone of Virginia, N. C., N. J., and Conn., *W. B. Rogers*, xix, 123.
of S. Carolina, by *Tuomey* and *Holmes*, noticed, xix, 452, xx, 128, 301.
of the so-called Taconic system, *J. Hall* on, xix, 434.
of Canada, *J. W. Salter*, xiv, 229.
of Rocky Mountains, *J. Hall*, xv, 126.
Silurian, of Tennessee, *J. M. Safford*, xii, 352.
work on, by *Mantell*, noticed, xiii, 407.
work on Nummulites, xiii, 449.
See further, *Geology*.
Foster, J. W., and *J. D. Whitney*, Geological Report on Lake Superior Land District, xii, 222, xv, 295.
Foucault's Pendulum Experiment, xii, 112.
J. D. Dana, xii, 200.
C. S. Lyman, xii, 251, 398.
experiments on the gyroscope, xv, 263, xix, 141.
Fountain of Blood in Honduras, xviii, 439, xix, 287.
Fownes's Chemistry, noticed, xvii, 454, xviii, 301.
Frankland, on action of light on iodid of ethyl, xii, 114.
on gas light illumination, xviii, 295.
Freezing of vegetables, *A. DeCandolle*, xiv, 445.
ibid, *J. LeConte*, xiii, 84, 195.
of animals, xiii, 84, 143, 438.
point of water lowered by pressure, xi, 115.
Fremont, J. C., letters of, on his recent Rocky Mountain Explorations, xvii, 447.
Fremy and *Becquerel*, chemical properties of electrified bodies, xiv, 101,
Fresnel's Wellenfläche, by *Engel*, noticed, xix, 450.
Franchot, hot air machine, xv, 418.
Fry on Fish-breeding, noticed, xix, 452.
Fuller, on eruption of Mt. Loa, xiv, 258.
Fulton, J., new escapement for a clock, xi, 406.
Fungi Caroliniani exsiccati, *Ravenal's*, xiv, 114.
Furnace products, diopside and molybdate of lead, xiv, 423.
crystallized, *Sandberger*, xvii, 128.
slags, *Hausmann*, xii, 394, xviii, 421.
Furuhjelm, letter by, on Laplanders, xi, 136.
Fusion of bodies, effect of pressure on, *Hopkins*, xix, 140.

G.

Gabbro rosso of Tuscany, xi, 206,
Gale, L. D., on waters of Great Salt Lake, etc., xvii, 129.
Galvanic apparatus, *Ruhmkorff's*, xv, 114.
battery, economical constant, *C. G. Page*, xiii, 257.
modification of Bunsen's, *Guignet*, xvi, 408.
of melted glass, xviii, 384.
on use of chlorid of iron in, xix, 420.
circuit, motion of fluids from positive to negative pole of, *Wiedemann*, xiv, 420.
current, heating of wire by, xvii, 265.
plane of polarization rotated by, xii, 111.
velocity of, in telegraph wires, xi, 67, 153.
time needed for maximum effect and importance in electro-mechanics, xi, 86.
daguerreotypes by, *B. Silliman, Jr.*, xi, 417.
interruptor of De La Rive, as improved by *Miraud*, xv, 115.
light evolved at negative pole, xi, 252.
sparks, direction of, from secondary currents, &c., *C. G. Page*, xi, 191.
reduction of metallic chromium, xviii, 266.
Galvanism, early discoveries of Berzelius, xvi, 4.
See further, *Electricity*.
Gambel, W., obituary notice of, xi, 143.
Gamboge Tree of Siam, *Dr. Christison*, xiii, 137.
Garrett, T. H., analysis of chrome ore, xiv, 45.
on Kämmererite, Bronzite, Emerald Nickel, Dolomite, xv, 332.

Gas, illuminating, from peat, xx, 261.
purification of, xi, 291.
illumination by, *Frankland*, xviii, 295.
by hydrogen, xii, 260.
fatty acids used for, xvi, 114.
Gases and vapors, elastic forces of, *Regnault*, xix, 264.
condensation of solid bodies, *Favre*, xix, 111.
law of absorption of, xix, 421.
liquefaction of, xi, 252.
magnetic relation of, *Plücker*, xiii, 110.
Gasparis, new planet, Psyche, xiv, 129.
Gautier, A., on the spots of the sun, xiv, 444.
Geinitz, H. B., on Graptolites, noticed, xvi, 281.
on the Quader-formation, xiv, 424.
work by, on Fossil Flora, &c., noticed, xix, 271.
Genera Plantarum Floræ Germaniæ, etc., noticed, xviii, 284.
Genth, F. A., Contributions to Mineralogy, xvi, 81, 167, xviii, 410, xix, 15.
allotropic modification of oxyd of cobalt, xv, 120.
on a probably new element with iridosmine and platinum, xv, 246.
on Rhodophyllite, xv, 438.
on a meteorite from New Mexico, xvii, 239, xx, 119.
on Herrerite, xx, 118.
Geodes filled with water, xiii, 267.
Geographical Department for Library of Congress, *E. B. Hunt*, xvi, 436.
Memorial on, xviii, 151.
Distribution of Coral Reefs and Islands, *J. D. Dana*, xiii, 338.
Distribution of Crustacea, *J. D. Dana*, xvi, 153, 314, xviii, 314, xix, 6, xx, 168, 349.
Distribution of Mollusca, *T. Bland*, xiv, 389.
of marine species, chart for illustrating, *J. D. Dana*, xvi, 153, 314.
Society of London, *Murchison's* address before, noticed, xiv, 450.
Survey of New York, remarks on importance of, xiv, 84.
Geography, African, xi, 437, 438.
Geological Chart, *J. Hall's*, noticed, xii, 150.
map of Keweenaw Point, by *J. D. Whitney*, noticed, xvii, 151.
Marcou's, noticed, xvi, 279, xvii, 199.
Report, preliminary, of, *W. P. Blake*, noticed, xix, 433.
of copper region, by *C. T. Jackson*, noticed, xi, 147.
of Mississippi, by *C. B. Wailes*, noticed, xx, 119.
of California, xi, 301.
1st annual, of New Jersey, noticed, xix, 438.
of Wisconsin, *J. G. Percival*, xix, 433.
on Wisconsin, Iowa and Minnesota, *D. D. Owen*, notice of, xv, 296, xvi, 86.
periods, diversity and number of animals, *L. Agassiz*, xvii, 309.
Survey of Canada, *Logan's*, xi, 116, xv, 129, xix, 438.
Geological Survey of Illinois, Report on, noticed, xvi, 451.
of the Mauvaises Terres, xv, 297.
of Pennsylvania, xi, 442.
of Tennessee, *J. M. Safford*, in charge of, xvii, 452.
observations on a part of California, *J. L. LeConte*, xix, 1.
theories, connection of, with form of earth, *Hennessy*, xv, 126.
Geological Society of France, Extracts from Bulletin of, xiii, 271.
Notice of Memoirs of, xiii, 271.
Geology—
depth of ocean during origin of chalk, xvii, 131.
globuliferous rocks, *Delesse*, xvii, 168.
parallelism of American rocks, xvii, 14.
Azoic series, xvii, 15
Silurian system of the Lake Superior region, *J. Hall*, xvii, 181.
age of Connecticut River and Virginia sandstone, *W. B. Rogers*, xix, 123.
age of Lake Superior Red Sandstone, xv, 299.
coal and red sandstone of North Carolina, *D. Olmsted*, xix, 430.
coal near Lake of the Woods, *Schoolcraft*, xix, 232.
foliation of metamorphic rocks, *E. Forbes*, xix, 122.
liassic sandstone of Nova Scotia, containing reptile remains, *J. Leidy*, xix, 446.
of the Red River region, xix, 437.
of Coral Reefs and Islands, *J. D. Dana*, xi, 357.
of Florida Keys, *M. Tuomey*, xi, 390.
of Spain, *J. E. del Bayo*, xi, 259.
Gnathodon beds of Mobile, *Hale*, xi, 164.
of Rocky Mountains, *J. Hall*, xv, 126.
of Lake Superior Land District, by *Foster* and *Whitney*, noticed, xii, 223, xv, 295, xvii, 11.
of the Mauvaises Terres, xv, 297.
of Wisconsin, Iowa, and Minnesota, xvi, 86.
of Middle Tennessee, *J. M. Safford*, xii, 352.
of Canada, *Logan* and *Salter* on, xiv, 224.
on the gold-fields of Victoria, or Port Philip, xvii, 279.
Post-pliocene of the south, *E. Desor*, xiv, 49.
of Oregon, note on, *G. Gibbs*, xx, 275.
crystalline limestones, age of, *T. S. Hunt*, xviii, 193.
Taconic system fossils, *J. Hall*, xix, 434.
pitch lake of Trinidad, *Manross*, xx, 153.
parallelism of mountain chains in America, *Desor*, xii, 118.
on former changes in the Alps, *Murchison*, xii. 245.
theories and figure of the earth, *Hennessy*, xv, 126.
Hauslab's crystal theory, xiii, 423.
Quader-formation of Germany, xiv, 424.
Tertiary of Belgium, *Lyell*, xiv, 425.
Outline of globe by *E. Hitchcock*, noticed, xvii, 295.
microscopic of Ehrenberg, noticed, xix, 435.

GEOLOGY—
on changes of sea-level, *Alfred Tylor*, xviii, 216.
Siluria of Bohemia, *Barrande*, xiii, 171.
Murchison's Siluria, review of, xviii, 394, xix, 371.
Emmons on American, reviewed, xix, 397.
notices of works on, xii, 451, xv, 465, xvi, 279, 418, xviii, 157.
See further, *Fossil, Coal, Volcano.*
German naturalists, meeting of, at Weisbaden, xv, 136.
Geysers of California, *F. Shepherd*, xii, 153.
Gibbes, L. R., Aurora of Sept. 29, 1851, xiii, 128.
on Xenotime of Georgia, xiii, 142.
on U. S. collection of Crustacea, noticed, xi, 128.
effect of solar eclipse on magnetic intensity, xviii, 139.
Gibbons, H., on climate of San Francisco, xiii, 434, xiv, 131, 283, xviii, 148, xix, 144.
Gibbs, G., volcanoes and coal, of Oregon, xx, 293.
Gibbs, W., contributions to analytical chemistry, xiv, 204.
analysis of dust of a Sirocco, xi, 374.
on Williamson's theory of ethers, xi, 422.
on Cahour's views on anisol, xi, 423.
on exhibition in London, xii, 440.
note to Landolt on Stibmethyl, xii, 431.
note to J. L. Smith's paper on the decomposition of chlorids, xvi, 416.
chemical abstracts, xi, 105, 251, 418, xii, 111, 427, xiii, 110, 260, 409, xiv, 97, 259, 420, xv, 117, 270, 425, xvi, 115, 410, xvii, 121, 271, 411, xviii, 124, 264, 412, xix, 110, 264, 418, xx, 264.
Gilding of Silk, xvii, 418.
Gillard's light, xii, 260.
Girard, C., work by, on the Cottoids of America, noticed, xiii, 148.
on Nemertes and Planariæ, xi, 41.
Girard and *Baird* on American reptiles, noticed, xv, 465.
Glacial Phenomena near Edinburgh, *R. Chambers*, xi, 119.
Glaciers of the Alps, *Schlagintweit*, xiv, 359.
in N. Wales, *Ramsay*, xix, 121.
on Moseley's paper on descent of, *J. Le Conte*, xx, 335.
Gladstone, influence of light on plants, 130.
Glass, crystallization of, *Leydolt*, xiv, 263.
mode of drilling holes in, xiii, 26.
for objectives, xix, 105.
Globuliferous rocks, *Delesse* on, xvii, 168.
Glucina, *Weeren* on xviii, 414.
Gluten of wheat, *Millon*, xvii, 415.
Glycerin, compounds of, with acids, xv, 428.
manufacture of, xv, 429.
a use of, xvi, 100.
operated on under pressure in preparing the fatty bodies, xvii, 267.
theory of compounds of, xx, 264.
Gnathodon beds of Mobile, xi, 164.
Gneiss, analyses of, xix, 430.
Goadby, H., preservation of animal substances, xii, 378.
Goadby, H., on making wet preparations of animal substances, xiii, 15, 227.
Gold in Arkansas, xii, 143.
in Australia, xii, 445, xiii, 118, 297, xvii, 279, xix, 289.
mass of 27½ pounds, xiv, 440.
great nugget of, xvi, 298.
in British Islands, xi, 232, xvi, 420.
of California, xii, 390.
region of, *W. P. Blake*, xx, 72.
of California, for April, 1852, xiv, 146.
in Canada, xi, 117, xv, 448.
of Darien, xi, 118.
in New Grenada, xii, 390.
in North Carolina, xv, 375.
in Pennsylvania, xv, 448, xix, 290.
in Spain, xi, 260.
in Vermont, xv, 147.
crystal, xv, 448.
idols of New Grenada, *Uricoechea*, xix, 246.
on making vessels of, by aid of phosphorus, xvii, 418.
Gold-fields of Victoria or Port Philip, xvii, 279.
Goldschmidt, C. W. B.., obituary notice of, xi, 443.
Gosse, P. H., on manufactured seawater for the aquarium, xviii, 293.
Gould, A. A., views on geographical distribution of Mollusca, xiv, 393.
Gould, Jr., B. A., velocity of galvanic current in telegraph wires, xi, 67, 153.
correction of, ibid, xii, 301.
Graham's Elements of Chemistry, noticed, xiv, 150.
Grape disease, penta-sulphid of calcium for preventing, *Price*, xvi, 141.
Graptolites, *Barrande* on, noticed, xii, 452.
Dr. H. B. Geinitz on, xiv, 128.
new, *H. A. Prout*, xi, 137.
Gray, A., review of introductory essay of Hooker's Flora of New Zealand, xvii, 241, 334.
notices of botanical works by, xiii, 42, 424, xiv, 114, 291, 427, xv, 129, 279, xvi, 129, 422, xvii, 132, 285, 443, xviii, 131, 284, 428, xix, 128, 439, xx, 129, 278.
age of tree of California, xvii, 440, xviii, 286.
on Buckleya, xviii, 98.
on the parasitism of Comandra umbellata, xvi, 250.
on Menodora and Bolivaria, xiv, 41.
on new Nyctagineæ, xv, 259, 319.
on Tetraclea, xvi, 97.
on discovery of species of Trichomanes, xv, 324.
Botany of U. S. Expl. Expedition by, noticed, xviii, 132.
Plantæ Wrightianæ, by, noticed, xvi, 426.
Greek fire, new, xviii, 388.
Greene, F. V., analysis of fossil bones, xvi, 16.
Greg, R. P., on Conistonite, xvii, 333, 440.
on Matlockite, xii, 388.
on meteorites and asteroids, xix, 143.
and Lettsom's British Mineralogy, xvii, 454.
Gregory, W., organic chemistry by, noticed, xiv, 149.

Griffith and *Henfrey*, Microscopic Dictionary of, noticed, xviii, 131, 285.
Grissell's improvements in coating metals, xiii, 135.
Grotto del cane, *B. Silliman, Jr.*, xii, 257.
Grunow, J. & W., microscopes of, xiv, 145, xx, 143.
Gulf stream, effect of, on temperature, xv, 77, 336.
exploration, xviii, 204.
Gum Mezquite, xix, 263.
Gutta percha bad as a means of insulation, *C. G. Page*, xi, 290.
used for printing ferns, &c., xi, 280, 441.
in photography, xiii, 300.
Guyot, A., on the Topography of New York, xiii, 272.

H.

Hackley, C. W., Trigonometry of, noticed, xi, 299.
Hague, J. M., analysis of tea, xi, 250.
Hail, protection against, xviii, 432.
at Cuba, xix, 290.
Hailstones, figures of large, xvii, 37.
Hailstorms in India, xiii, 294.
New York, *E. Loomis*, xvii, 35.
Haldeman, S. S., notice of Rigg's Dacota Grammar, xix, 450.
Elements of Latin Pronunciation, noticed, xii, 303.
Hale, C. S., Gnathodon beds of Mobile, xi, 164.
Hall, J., new genera of fossil corals, xi, 398.
on fossils of the Taconic System, xix, 434.
Geological Chart, noticed, xii, 150.
work by, on Palæontology of New York, noticed, xv, 466, xvi. 127.
on Rocky Mountains, xv, 126.
on the Silurian System of the Lake Superior Region, xvii, 181.
Halos and Parhelia, *C. M. Tracy*, xiii, 433.
Hamilton, W. J., extract from address of, xx, 375.
Handbook of Universal Geography, noticed, xv, 465.
Hanson's Florist and Horticultural Journal, noticed, xix, 452.
Hare, R., on attrition of siliceous stones, xii, 434.
Hart, T. S., letter on Almaden Mine, xvi, 137.
Hartwell, C., on a Tertiary Rainbow, xvii, 56.
Harvey's Nereis Boreali-americana, noticed, xiv, 1, xvi, 422.
Phycologia Britannica, xiii, 53.
Hassal, A. H., microscopic anatomy by, noticed, xii, 451.
Hats, Panama, xix, 439.
Hauslab, on the octahedral character of the Globe, xiii, 268.
Crystal Theory of the Globe, note on, *J. D. Dana*, xiii, 424.
Hausmann, J. F. L., diopside and molybdate of lead, furnace products, xiv, 423.
on furnace slags, xii, 394, xviii, 421.
Hawaii, eruption of Mauna Loa, in 1851, xiii, 299, 395.
ibid, in 1852, xiv,105, 219, 254, xv, 63.
Hawaian Islands, see *Pacific*.
Hayes, A. A., on Borocalcite, xviii, 95.
coal of Rhode Island, xi, 267.
corrosion of copper sheathing, xi, 324.
on Rutile, xii, 389.
different chemical conditions of waters of surface and bottom of ocean, xi, 241.
Cochituate water, xix, 257.
Heat, latent, of ice, xi, 251.
mechanical action of, *Rankine*, xvii, 274, xviii, 64.
note on, *F. A. P. Barnard*, xviii, 300.
mechanical equivalent of, xiv, 421, xix, 421.
relation of specific, to atoms, xv, 110.
specific, of gases and vapors, xvi, 115.
expenditure of, in air-engine, *F. A. P. Barnard*, xviii, 161.
used in taking impressions, xviii, 438.
passage of, through crystals, *Knoblauch*, xiv, 97, xix, 110.
produced by friction, for making steam, xx, 261.
Heated Air Engine, see *Caloric*.
Heating lamp of *Deville*, xviii, 391.
Hectocotylus of the Cephalopoda, xvi, 260.
Height of points on the Alleghany and Ohio Rivers, xvi, 124.
snowline in different regions, xv, 249.
perpetual snow in the Alps, xix, 290.
ibid, in the Himalaya, xi, 244.
Mount Ararat, xviii, 440.
Mt. Bolca, xii, 301.
Heights of the Alps, *Schlagintweit*, xiv, 363.
in California, xx, 178.
in the Caspian Basin, xviii, 440.
in Vermont, xvi, 145.
measurement of, by boiling water, xx, 117.
Heintz, constitution of human and other fat, xiii, 260, xv, 428.
Heliochromies, *Niepce*, xv, 272.
Helmholtz, on rate of transmission of impressions on the nerves, xvii, 422.
Hemione, domesticated, xix, 411.
Henck's Fieldbook for Railroad Engineers, xviii, 158.
Hendricks, J. E., on the flow of elastic fluids, xv, 378.
Hennessy, H., Figure of the Earth and Geological Theories, xv, 126.
Researches in Terrestrial Physics, by, noticed, xiii, 271.
Henfrey, A., on sexual organs in the Cryptogamia, xiv, 378, xv, 25, xx, 276.
Vegetation of Europe, by, noticed, xiv, 115.
Herapath, T. J., on nitric acid as known to the Egyptians, xvi, 296.
Herbarium of Nees von Esenbeck, xiv, 143.
Hermann, K., on Mica, Cordierite, Chloritoid, &c., xiv, 269.
on Scapolite, xiv, 271.
Herrick, E. C., Meteor seen in full day light, xi, 131.
meteor of Sept. 30, 1850, xi, 131.
auroral beam of April, 1852, xiv, 130.
Auroral bow of June, 1852, xiv, 131.
shooting stars of August, 1850, xi, 130; for Nov. and Dec., 1850, xi, 131; for August, 1852, xiv, 430; for August, 1853, xvi, 288; for August, 1855, xx, 285.

Hildreth, S. P., Meteorological Journal at Marietta, O, for 1850, xi, 239; for 1851, xiii, 237; for 1852, xv, 243; for 1853, xvii 255; for 1854, xix, 234.
Himalaya, limit of perpetual snow of, *Strachey*, xi, 244.
physical geography of, *Strachey*, xx, 121.
Hind, J. R., new planets, xiv, 283, 436.
on the solar system, noticed, xiv, 453.
Hippopotamus of Africa, *Leidy's* paper on, noticed, xiv, 290.
Hitchcock, C. H., tracks on clay, xix, 391.
Hitchcock, E., Report by, on some points in Geology of Massachusetts, xvi, 301.
Coal field of Bristol Co., of Rhode Island, xvi, 327.
on Brown Coal of Brandon, Vt., xv, 95.
on a slide on Mt. Lafayette, xiv, 73.
Outline of the Geology of the Globe by, noticed, xvii, 295.
Elementary Geology, noticed, xviii, 157.
Hitchcock, Jr., E., on a species of Clathropteris, xx, 22.
Hoffmann, on molecular structure of organic bases, xii, 428.
action of cuminic acid on human system, xi, 116.
Hofmeister, on development of Zostera, noticed, xvi, 131.
Holland's method of desulphurizing metals, xviii, 291.
Homer, C. S., analysis of tea, xi, 251.
Homœography, xviii, 441.
Homœomorphism of mineral species of the Trimetric System, *J. D. Dana*, xviii, 35, 131.
of the dimetric and hexagonal systems, xviii, 131, 271.
ibid, tables of, xvii, 430.
of some mineral species, *J. D. Dana*, xvii, 85, 210, 430.
of Sphene and Euclase, xvi, 96.
of oxyd of zinc and Corundum, xvii, 128.
See further, *Isomorphism*.
Honduras, "Fountain of Blood," xviii, 439, xix, 287.
Hooker's Flora of New Zealand, noticed, xiv, 427, xv, 456, xviii, 132, 284, xix, 439.
ibid, introductory Essay in, reviewed, xvii, 241, 334.
Species Filicum, noticed, xvi, 132.
Icones Plantarum, noticed, xviii, 284.
Hooker, W., Human Physiology by, noticed, xviii, 448.
Hopkins, E., work by, on the Connection of Geology with Terrestrial Magnetism, noticed, xiii, 302.
Hopkins, W., address before the Geol. Soc. of London, noticed, xiv, 453.
on the causes that may have modified the earth's temperature, xiv, 282.
on changes of climate, xv, 72, 248, 334.
Horseflesh for food, xx, 263.
Horsfield's Plantæ Javanicæ, noticed, xvi, 131.
Horsford, E. N., analyses of teas communicated by, xi, 249.
relation of chemical constitution to taste, xii, 195.
permeability of metals to mercury, xiii, 305.
Horsford, E. N., on the consolidation of the rocks of the Florida reef, xiv, 245.
motion in Bunker Hill monument from sun's heat, xiv, 443.
Hosking, W., on ventilation by the parlor fire, xiii, 249.
Hubbard, O. P., notices of minerals, xi, 423.
gigantic Beryls of Grafton, N. H., xiii, 264.
gold in Vermont, xv, 147.
on Sulphur and Orpiment in Koordistan, xiv, 103.
resuscitation of frozen fish, xii, 291.
Humboldt's letter on the death of von Buch, xv, 464.
note on, xix, 285.
Hunt, E. B., views on the nature of organic structure, xiii, 53.
on proposed geographical survey of New York, xiv, 84.
on the conical condenser, xvi, 432.
on a Geographical Department for Library of Congress, xvi, 436.
on the nature of forces, xviii, 237.
on map projections, xviii, 326.
on an Index of papers on subjects of mathematics and physical science, xx, 341.
on our sense of the vertical and horizontal, etc., xx, 368.
Hunt, R., chemical action of solar radiations, xvi, 416.
on photographs, noticed, xiii, 302.
Hunt, T. S., mineral springs of Canada, xi, 174.
analysis of Warwickite, xi, 352.
on some Canadian minerals, xii, 212.
on Loganite, xii, 337.
on the compound ammonias, and the bodies of the cacodyle series, xiii, 206.
on octahedral oligist iron, including observations on isomorphism, xiii, 370.
examination of some American minerals, xiv, 340.
note by, on atomic volume, xv, 116.
theory of chemical changes, xv, 150, 226.
on phosphatic nodules in Silurian rocks, xv, 129.
analysis of Serpentine, xv, 436.
of Sphene of Grenville, xv, 442.
constitution and volume of some minerals, xvi, 203.
on Algerite, xvii, 351.
theoretical relations of water and hydrogen, xvii, 194.
on composition of recent and fossil Linguæ, xvii, 235.
on the North American crystalline limestones, xviii, 193.
illustrations of chemical homology, xviii, 269.
thoughts on solution, xix, 100.
on the equivalent of some species, xix, 416.
mineralogical notes, on Wilsonite, Bytownite, Magnesite, a coral island dolomite, xix, 428.
on the so-called talcose slates of the Green Mts., xix, 417.
on some ores of nickel from Lake Superior, xix, 417.
on an iron meteorite, xix, 417.

Hunter, C. L., minerals of western North Carolina, xv, 373.
Hurricane, on the Brandon, *O. N. Stoddard* xviii, 70.
of September, 1853, and others, *W. C. Redfield*, xviii, 1, 176.
of Jan., 1854, in Knox Co., Ohio, xvii, 290.
on the Harrison, xx, 161.
Hydrargyro-methyl and hydrargyrethyl, xviii, 413.
Hydrobarometer, *Walferdin*, xiii, 269.
Hydrocyanaldin, xviii, 413.
Hydrogen, employment of, in mineral analysis, xi, 253.
used for illuminating gas, by *M. Gillard*, xii, 260.
Hygrometric moisture of the air, new mode of determining, xii, 419.
Hylæosaurus, dorsal dermal spine of, xi, 299.

I.

Ibis guarauna in New England, *Dr. Cabot*, xi, 435.
Ice, boulders transported by, *Perley*, xi, 425.
latent heat of, xi, 251.
sudden disappearance of, on Lake Champlain, xii, 22.
Iconographic Encyclopedia, xii, 303, xiii, 150.
Iguanodon and the Wealden, *Mantell*, xiv, 107.
Illumination, fatty acids used for, xvi, 114.
gas from peat for, xx, 261.
hydrogen used for, xi, 253.
purification of gas for, xi, 291.
observations on, *Frankland*, xviii, 295.
by electric light, xviii, 335, 438.
Illinois, mastodon in, xii, 440.
Index of papers in physical science, etc., *E. B. Hunt* on, xx, 311.
India, arts and manufactures of, *Royle*, xiv, 160.
hailstorms in, xiii, 294.
Indians, metals used by American, xi, 314.
Indian monuments of N. York, *E. G. Squier*, xi, 305.
mounds in Alabama, xv, 186.
population of British America, xvi, 189.
Indiana cave, xi, 283.
Infusoria of California, *Ehrenberg*, xvi, 134.
in California and Oregon, *J. W. Bailey*, xvii, 179.
in dust-showers, *Ehrenberg*, xi, 372.
in Hudson river ice, *Bailey*, xi, 351.
of Maryland, xi, 85.
of the Mississippi, *Ehrenberg*, xiv, 428.
of the Mississippi silt, proportions of, xviii, 158.
of the Southern ricefields, xi, 85.
new, *A. S. Johnson*, xiii, 33.
the larval state of intestinal worms, *L. Agassiz*, xiii, 425.
Insect wax of China, *D. J. Macgowan*, xii, 17.
Insects, new, of genera Libythea and Macroglossa, *J. P. Kirtland*, xiii, 336.
on preserving Lepidopterous, xiii, 286.
mode of preserving, *Duzee*, xx, 144.
on destroying, by gaseous injections, xvi, 106.
Emmons's Report on, reviewed, xix, 247.
Intestinal worms, the parents of infusoria, *L. Agassiz*, xiii, 425.
Iodid of amyl, action of, on an alloy of sodium and tin, *Grimm*, xix, 269.
of nitrogen, *Gladstone*, xii, 432.
of phosphorus, action of, on glycerine, xix, 270.
Iodine, in ammoniacal liquids from manufacture of gas, xi, 109.
and phosphorus, compound of, xi, 253.
vapor of, used in copying engravings and designs, xvi, 113.
Irene, new planet, xii, 293.
Iridium, new compounds of, xvi, 412.
Iron, native, in greenstone, *Dr. Andrews*, xv, 443.
beds of Dannemora, *Erdmann* on, noticed, xiii, 449.
of Wisconsin, xx, 295.
meteoric, *C. U. Shepard*, xv, 1, 363.
W. S. Clarke, xv, 7.
J. L. Smith, xix, 153.
of Canada and Greenland, xix, 417, 430.
See further, *Meteorites*.
smelting, observations on, xiv, 24.
on Fuchs's method for determination of, *Brant*, xviii, 227.
See further, MINERALS.
Isomerism, a new case of, *M. Pasteur*, xv, 109.
Isomorphism, views on, *T. S. Hunt*, xiii, 370.
T. Scheerer, on, xiv, 37.
heteronomic, *J. D. Dana*, xii, 204.
of sphene and euclase, *J. D. Dana*, xvi, 96.
see further, *Homœomorphism*.
Isomorphous substances, optical properties of, *Senarmont*, xiii, 409.
and homœomorphous species, on series of, *von Kobell*, xviii, 271.
Isothermal chart of the ocean, *J. D. Dana*, xvi, 153.
lines, chart of, xv, 459.
Isothermals, on causes of changes in, *W. Hopkins*, xv, 72, 248, 334.
Itzigsohn, on antheridia in a Borrera, xv, 455.
Ivory, vegetable, xix, 440.

J.

Jackson, C. T., Geological Report of Lake Superior copper regions, noticed, xi, 147.
analysis of Pitchstone porphyry and Phosphorite, xi, 401.
Allophane of Tennessee, xix, 119.
on Eupyrchroite, xii, 73.
on the coal formation of New Brunswick, xii, 281.
decoration conferred on, by the Sultan, xx, 145.
Jacobi, obituary notice of, xii 147.
Jæger, G., on sugar in Rhododendron, xi, 280.
Jay, J. C., catalogue of shells by, noticed, xii, 447.
Jenison, death of, xvii, 444.
Johnson, A. S., on some infusoria, xiii, 33.
notice of a new object-glass, made by C. A. Spencer, xiii, 31.
Johnson, S. W., on bimucate of amyl-oxyd, xix, 423.
on Houghite, xii, 361.
Johnson, W. R., on the strength of building stones, xi, 1.

Johnston's Chemistry of Common Life, noticed, xviii, 448, xix, 451.
Jones, G., on the zodiacal light, xx, 138.
Journal of Acad. Nat. Sci., Philad., xi, 149, xiii, 303.
Meteorological, see *Meteorological.*
Judea, views of monuments in, taken by photography, xviii, 437.
Jussieu's Epist. Linn., noticed, xvii, 443.

K.

Kakodyl, see *Cacodyle.*
Keber's De Spermatozoorum, etc., noticed, xvi, 393.
Kenngott, G. A., Krystallformenetze, etc., noticed, xviii. 159.
Kentucky Mammoth Cave, *B. Silliman, Jr.*, xi, 332.
Kidneys, *Burnett* on, xvii, 374
Kilauea, *T. Coan* on, xv, 63. xviii, 96.
recent condition of, *C. S. Lyman*, xii, 75.
King & Mapes's Journal of Agriculture, noticed, 303.
Kinney, H., on eruption of M. Loa, xiv, 257.
Kirkwood, D., law of rotation of planets, xi, 394.
on Saturn's rings, xii, 109.
law, *E. Loomis* on, xi, 217.
J. B. Cherriman on, xiv, 9.
on certain analogies in the solar system, xiv, 210.
Kirtland, J. P., climate &c., of the south shore of Lake Erie, xiii, 215, 293.
method of preserving Lepidoptera, xiii, 286.
a new Libythea, and Macroglossa, xiii, 336.
localities and habits of some Insects, xvii, 444.
Knapp's chemistry, noticed, xiii, 443.
Knoblauch, passage of radiant heat through crystals, xiv, 97, xix, 110.
Kobell, F. von, on the Stauroscope, xix, 425, xx, 415.
on series of isomorphous and homœomorphous forms, xviii, 271.
on Chloritoid and Clinochlore, xviii, 272.
Koh-i-noor Diamond, xv, 144, xvii, 136.
Kokscharov, N., on a crystal of Fischerite, xv, 449.
on Clinochlore, xix, 176.
on Russian Mineralogy, xx, 129.
Kölliker on Muscular Tissue, reviewed, xvii, 89.
Mikroscopische Anatomie, etc., noticed, xvi, 400.
Koninck, on Crinoids, noticed, xx, 151.
Koordistan, sulphur and orpiment in, xiv, 103.
Kopp, on specific volume of fluid compounds, xix, 418.
Krantz's establishment, xii, 445.
Kunze's Supplement to Schkuhr's Carices, noticed, xiii, 424.
Kupffer, mechanical equivalent of heat, xiv, 421.

L.

Laboratory, sandbath, &c., for, *J. P. Norton*, xii, 52.
Lachlan, on the rise and fall of Western Lakes, xix, 60, 164, xx, 45.
Lagrange's Mecanique Analytique, noticed, xvii, 420, xx, 112.
Lake Champlain, disappearance of ice of, xii, 22.
Erie, climate, &c., of south shore of, xiii, 315, 293.
rise and fall of, xii, 143.
Superior, drift of, *E Desor*, xiii, 95.
notes, on *J. J. Bigsby*, xiv, 138.
Land District, Report on, by *Foster* and *Whitney*, reviewed, xii, 222, xv. 295.
Region, Geology of, *J. D. Whitney*, xvii, 11.
Red Sandstone, age of, xv, 299.
Lakes in Vermont, level of, xvi, 445.
on rise and fall of Western, *Lachlan*, xix, 60, 164, xx, 45.
Lalande Medal, xi, 293.
Lallemand, death of, xviii. 431.
Lamé on Elasticity of bodies, noticed, xvii, 420.
Laming, purification of coal gas, xi, 291.
Landgrebe on Volcanoes, noticed, xx, 129.
Landolt on stibmethyl, xii, 430.
Lane, J. H., law of induction of electric current on itself, xi, 17.
Lange's Atlas, von Nord America, xviii, 450.
Lankester, E., on limit of vegetable and animal kingdoms, xix, 282.
Lapham on the grasses of Wisconsin, xix, 442.
Laplanders and Lapland, xi, 136.
Lassell, E., obituary notice of, xiii, 300.
Latham, on native races of Russia, noticed, xix, 295.
Lathrop, S. P., Meteorological Journal kept at Beloit, Wis., for 1850, xi, 345; for 1851, xiv, 241; for 1852, xvi, 140; for 1853, xviii, 146.
resuscitation of frozen fish, xiii. 143.
Latitudes by zenith telescope, *A. D. Bache*, xiv, 191.
Laurent, A., obituary notice of, xvi, 103.
publication of works of, xvii, 263.
Methode de Chemie, *Biot's* Preface to, xviii, 443.
Laurent on animacules, noticed, xx, 112.
Lava, *Rammelsberg* on composition of, xii, 392.
Lea, I., memoir on a fossil Saurian of Pennsylvania, noticed, xiv, 451.
memoir on fossil footmarks of Pottsville, xiv, 451.
On the genus Unio and on the family of Naiades, noticed, xiv, 454.
on fossil footmarks of Pottsville, Pa., noticed, xx, 301.
Lead, corrosion of, by galvanic action, *R. Buckler*, xiv, 261.
effects of sea water on, xx, 282.
mine at Phenixville, *H. D. Rogers's* Reports on, noticed, xvi, 422.
ores, reference to article on origin of, xii, 330.
Leather, observations on, xiv, 29.
LeConte, J., on the freezing of vegetables, xiii, 84, 195.
on Moseley's paper on descent of glaciers, xx, 335.
LeConte, J. L., on meteoric iron of Sonora, Mexico, xiii, 289.
volcanic springs in California, xix. 1.

Lectures of the Great Exhibition, noticed, xiv, 159.
Lee, S. P., Report by, on the Cruise of the Dolphin, noticed, 449.
Lefroy, J. H., on Aurora Borealis of 1850–1, xiv, 1853.
Climate of winter of 1851–2 in Canada, xiv, 135.
Indian population of British America, xvi, 189.
Leidy, J., on extinct species of American ox, and other papers, noticed, xv, 303, xvi, 281.
on the Hippopotamus of Africa, noticed, xiv, 290.
on Nebraska and other fossils, xvi, 281.
Flora and Fauna within living animals, xvi, 426.
on the fossil animals of the Mauvaises Terres, xviii, 446.
fossil reptiles from Nova Scotia, xix, 444.
Leighton, W. A., work by, on Angiocarpous Lichens, noticed, xiii, 303.
Lens of Rock crystal of Nineveh, xv, 122.
Leonhard's Elements of Geology, noticed, xiii, 448.
Lepidoptera, on preserving, xiii, 286
Leprosy, freedom of Arabs from, xiv, 289.
Leuchars, R. B., on hot houses, noticed, xi, 148.
Level of Sea, on changes in, *A. Tylor*, xviii, 21, 216.
relative, of Red Sea and Mediterranean, xi, 142.
changes of, in the Pacific, *J. D. Dana*, xv, 157.
of places in Vermont, xvi, 445.
Leverrier, on the small planets, xviii, 80.
Lieber, O. M., appointed professor in the University of Mississippi, xiii, 144.
Liebig's Agricultural Chemistry, Johnson's translation, noticed, xx, 301.
Light, certain physical properties of, *D. Alter*, xviii, 55, xix, 213.
on certain theories of, *Stokes*, xiv, 432.
of aurora without polarization, xvi, 148.
polarization of, xv, 175.
by refraction through a metal, xvii, 121.
connection of chemical forces with polarization of, *N. S. Maskelyne*, xii, 64.
chemical action of, xvi, 416.
epipolic, dispersion of, xv, 270.
note on, by *W. Gibbs*, xv, 272.
on internal dispersion of, xvii, 121.
evolved at negative galvanic pole, xi, 252.
Light House system of the U. States, report on, xiii, 318.
Lightning, effects of, *W. Coffin*, xiii, 134.
effect of, at Attleboro', Mass., *H. Rice*, xii, 239.
conductors, xv, 111, xix, 139.
Lignite of Spain, xi, 264.
Limestone, analysis of a Maryland variety of, called "alum limestone," *L. D. Gale*, xi, 4.
coral, magnesian, *T. S. Hunt*, xix, 429.
geological age of crystalline, in North America, *T. S. Hunt*, xviii, 193, xix, 371, 399.
Limestone of Predazzo, xii, 214.
or marble monuments, on preserving, xiii, 298.
Limestones, artificial silicification of, xvii, 119.
Linck, Dr., death of, xi, 446.
Lindley's Vegetable Kingdom, noticed, xvii, 133.
Folia Orchidacea, noticed, xvi, 130, xvii, 443.
Lingulæ, on composition of recent and fossil, xvii, 235.
Linnæa, noticed, xviii, 285.
Liquefaction of gases, xi, 252.
Lithium, preparation of metallic, xx, 267.
Locomotion with vapor of ether, xvi, 408.
Locomotive, electro-magnetic, of *Prof. Page*, xii, 139.
Logan, W. E., report of geological survey of Canada, xi, 116, xv, 129, xix, 438.
foot-tracks found by, in Silurian rocks of Canada, xiv, 454.
and *Salter*, on the rocks of Canada, xiv, 224.
Logeman's magnets, prices of, xi, 278.
Loomis, E., on Kirkwood's law, xi, 217.
work by, on Progress of Astronomy, noticed, xi, 146.
on satellites of Uranus, xiv, 405.
New York hailstorm, xvii, 35.
on the resistance experienced by bodies falling through the air, xviii, 67.
Practical Astronomy by, noticed, xx, 300.
Louisiade Archipelago, observations on, xi, 439.
Löwig, new radicals containing tin, xvi, 116.
Organic and Physiological Chemistry, noticed, xvi, 150.
Lumsdaine, cultivation of nutmegs and cloves, xii, 322.
Lupulin, xvii, 416, xix, 128.
Lustre, on Dove's theory of, xv, 125.
Luther, new planet, Thetis, xiv, 130.
Lyceum of Nat. Hist. of New York, see *Annals*.
Lyell, C., on Fossil reptilian remains of Nova Scotia, xvi, 33.
Tertiary of Belgium, xiv, 425.
Elementary Geology by, noticed, xx, 128.
Lyman, C. S., Auroral Bow of June, 1852, xv, 55.
recent condition of Kilauea, xii, 75.
on pendulum experiment, xii, 251, 398.
Lyman, J., account of a reflecting telescope made by, *A. Caswell*, xiii, 129.
Lynch, W. F., notice of Report of Expedition to Dead Sea, xix, 147.

M.

M'Coy, work by, on Palæozoic fossils of Cambridge University Museum, noticed, xii, 448, xiv, 291.
Macfarlane, R., History of Propellors and steam navigation by, noticed, xii, 450.
McGillivray, W., obituary of, xv, 295.
Macgowan, D. J., coal of China, xi, 235.
on Chinese horology, xiii, 241.

Macgowan, D. J., on Chinese and Aztec Plumagery, xviii, 57, 156.
on the Tallow Tree, xii, 17.
on the Eagre, xx, 305.
McLeod, T. H., on the Arabic method of notation, xix, 48.
centers of primitive civilization, xx, 201.
Madder, coloring principles of, xi, 109.
Magnesium, equivalent of, *Marchand* and *Scheerer*, xii, 279.
preparation of, xiv, 421.
Magnetic attraction, on use of, on railroads, *J. Nicklès*, xvi, 337.
and diamagnetic condition of oxygen, &c., *Faraday*, xi, 411.
ibid, of atmosphere, *Faraday*, xi, 413.
condition of oxygen and nitrogen, *Faraday*, xi, 276.
disturbances, on periodical laws in, xvii, 144.
field, peculiarities of, *Tyndall*, xix, 135.
force, *Tyndall*, xx, 114.
needle at Paris, declination and inclination of, xiii, 443.
change in inclination, *Hansteen*, xix, 147.
periodical variations in, *W. A. Norton*, xix, 183, xx, 26.
and paramagnetic substances, law of induction in, *Plücker*, xvii, 423.
relations of gases, *Plücker*, xiii, 110.
Magnetical investigations, *Scoresby's* work on, noticed, xvi, 418.
Magnetisation, *Nicklès*, xx, 99, 104.
Magnetism, laws of. *Tyndall*, xii, 427.
law of intensity of, in soft iron, xi, 106.
penetration of, into soft iron, xi, 105.
of oxygen, *Plücker*, xii, 427.
by rotation, xviii, 386.
Sturgeon's discoveries in, xi, 445.
terrestrial, *Sabine*, xiv, 434, xix, 424.
views on, xvii, 116.
prize on, offered by French Government, xvii, 417.
Magneto-electric currents, *Sinsteden*, xviii, 264.
machines, contrivance in, called "unitrep," first brought forward by *Prof. Page*, xi, 445.
See further, *Electro-magnetic*.
Magnetographs, on the Kew, *Sabine*, xii, 270.
Magnets, artificial, xvii, 118.
prices of Logeman's, xi, 278.
See further, *Electro-magnets*.
Magno-crystallic action, *Tyndall*, xv, 124.
Magnolia, seeds of, xx, 279.
Mahan, D. H, Industrial Drawing by, noticed, xv, 302.
Makerstoun, observations on Auroras, xi, 139.
Malaguti's Chemie, announced, xix, 414.
Maldives, xii, 39.
Mallett, on earthquakes, xii, 421.
Mallett, J. W., on telluret of ethyl, xiii, 113.
on tin pyrites, xvii, 33.
Idocrase in Tennessee, xx, 85.
crystallization of platinum from fusion, xx, 340.
Norwich phosphate, xviii, 33.
Mammalia, list of species described by *J. Leidy*, xi, 274.
Mammoth Cave, *B. Silliman, Jr.*, xi, 332.
animalsof, xi, 127.
blind fishes of, *J. Wyman*, xvii, 258.
Manganese, color of salts of, xvi, 416.
distribution of, *D. A. Wells*, xiii, 9.
separation of, in analysis, *W. Gibbs*, xiv, 204.
in urine, xi, 259.
volumetric determination of, xvii, 126.
ores of the Pyrenees, xii, 221.
reference to article on origin of, xii, 390.
Manross, N. S., artificial formation of minerals, xvi, 186.
Pitch-lake of Trinidad, xx, 153.
Mantell, G. A., reptile remains in old red sandstone, xiii, 278.
Iguanodon and the Wealden, xiv, 107.
Pictorial Atlas of fossil remains, xi, 298.
memoirs of, noticed, xi, 299.
work by, on organic remains of British museum, noticed, xiii, 407.
a pension to, xiv, 290.
obituary of, xv, 147.
Mantell, W., discovery of Notornis, xi, 102.
discovery of Apteryx, xi, 434.
Manual of Natural History for Travellers, noticed, xviii, 301.
Map, geological, of U. S. and British N. A. Provinces, noticed, xvi, 279, xvii, 199.
Projections, *E. B. Hunt* on, xviii, 326.
of Feejee Islands, xiv.
of Winter Isothermal Lines, xv.
See further, *Chart*.
Marble, means of preserving, *Rochas*, xiii, 298.
Marbles, strength of different, xi, 1.
Marchand and *Scheerer*, equivalent of magnesium, xii, 279.
Marcou, J., a paper by, on Mountain Systems of America, announced, xix, 290.
Geological Map, notice of, xvi, 279, xvii, 199.
Marcy's Exploration of the Red River, noticed, xix, 437.
Marignac on Didymium, xvi, 413.
Marsh, D., cabinet for sale, xvi, 298.
Martius's Flora Brasiliensis, xiii, 425, xix, 128.
Mascher's Stereoscopes, xix, 289, 447.
Maskelyne, N. S., connection of chemical forces with polarization of light, xii, 64.
Mastodon, cranium of, *J. Wyman*, xv, 48.
in California, xix, 133.
in Northern Illinois, xii, 439.
at Poughkeepsie, N. Y., xviii, 447.
range of, to Rupert's Land, xix, 131.
work on, by *Dr. Warren*, noticed, xiv, 454, xv, 367.
supernumerary tooth in, *J. C. Warren*, xix, 349.
Mathematical problem, by *B. D. Shastri*, xi, 194.
Mathematics, on Calculus of Operations in, *J. Paterson*, xi, 327.
Mather, W. W., on argentiferous galena in Arkansas, xv, 450.
on a Coal bed of Perry Co., O., xv, 450.
Western Agriculturist edited by, noticed, xi, 302.
Mathiot, G., Electrotyping operations of the U. S. Coast Survey, xv, 305.

Matteucci, Cours sur l'Induction, etc., noticed, xix, 152.
Mauméné, new mode of preparing nitrogen and chlorine, xiii, 412.
Mauna Loa, winds of, xii, 446.
eruptions of, 1851, xiii, 299, 395; in 1852, xiv, 105, 209, 254, xv, 63.
Maury, M. F., on barometric pressure across S. America, xvi, 295, xix, 385.
Astronomical Observations of, noticed, xii, 149, xviii, 158.
Sailing Directions, noticed, xvii, 295.
Physical Geography of the Sea, noticed, xix, 449.
wind and current chart, xiii, 149.
Mayer and Beaumont's thermogenic apparatus, xx, 261.
Meat, preservation of fresh, *G. Hamilton*, xix, 146.
Medal, Lalande, xi, 293.
Megatherium, *Owen* on, xiv, 91.
Meigs, C. D., memoir of S. G. Morton, xiii, 153.
Melloni, obituary of, xviii, 431, xix, 414.
Meneghini, mineralogical notes, xiv, 60.
Geology of Tuscany, noticed, xiv, 292.
Menodora and Bolivaria, *A. Gray*, xiv, 41.
Mercury, limits of vaporization of, xix, 408.
permeability of metals to, *Horsford*, xiii, 305.
ibid, *J. Nicklès*, xv, 107.
in California, xx, 79.
Mermithes, *W. I. Burnett*, xviii, 107.
Metallic Wealth of the United States, *J. D. Whitney* on, noticed, xviii, 274.
Metals, crystalline form of the rhombohedral. *G. Rose*, xii, 279.
Grisell's improvements in coating, xiii, 135.
method of desulphurizing, xviii, 291.
tenacity of, xi, 143.
spongy, xx, 103, 109.
Meter, verification of a standard, xv, 113, 413
Meteor, see *Shooting Star*.
Meteoric iron, see *Meteorites* and *Minerals*.
Meteorites, theoretical considerations on, *J. L. Smith*, xix, 153, 322.
and asteroids, *R. P. Greg*, xix, 143.
Report on, by *W. S. Clarke*, xv, 7.
of S. Africa, etc., *C. U. Shepard* xv, 1.
of Canada, *T. S. Hunt* xix, 417.
of Georgia, Putnam Co., *Willett*, xvii, 331.
Union Co., *C. U. Shepard*, xvii, 328.
from Greenland, xix, 430.
of Gutersloh, xv, 290.
of India, *C. U. Shepard*, xi, 36.
of Iowa, *C. U. Shepard*, xi, 38; xv, 6.
of Ireland, County Down, *C. U. Shepard*, xi, 37.
of Kentucky, Salt River, *C. U. Shepard*, xi, 40.
at Lixna, xvi, 148.
from Mexico, Chihuahua, *J. L. Smith*, xix, 163.
Coahuila, *J. L. Smith*, xix, 160.
Durango, *A. von Humboldt*, xv, 19.
Sonora, *J. L. LeConte*, xiii, 289.
ibid, *C. U. Shepard*, xviii, 369.
ibid, *J. L. Smith*, xix, 161.
from New Mexico, *F. A. Genth*, xvii, 239.
Meteorites of New York, Cayuga Co., near Seneca River, *C. U. Shepard*, xv, 363.
ibid, *O. Root*, xiv, 439.
Seneca Co., *C. U. Shepard*, xi, 39.
of N. Carolina, Buncombe Co., *W. S. Clarke*, xv, 9.
Haywood Co., *C. U. Shepard*, xvii, 327.
of Pennsylvania, Pittsburgh, *C. U. Shepard*, xi, 40.
of Prussia, Schweitz, *G. Rose*, xiii, 142, xv, 19, 20.
of S. Carolina, Lexington Co., Ruff's Mt., *C. U. Shepard*, xv, 5.
of Stannern, xiv, 279.
of Tennessee, Campbell Co., *J. L. Smith*, xix, 159.
Clairborne Co., *Shepard*, xvii, 325.
Jefferson Co., *Shepard*, xvii, 329.
Tazewell Co., *Smith*, xvii, 131; xix, 153.
Meteorological coincidences, *J. H. Alexander*, xii, 1.
instruments used by the Smithsonian Institution, xiii, 288.
Journals and observations at Athens, Greece, in 1851, xiv, 289.
at Attleboro', Mass., in 1851, *H. Rice*, xiv, 139.
by *S. P. Lathrop*, at Beloit, Wis., in 1850 xi, 345; in 1851, xiv, 241; in 1852, xvi, 140; in 1853, xviii, 146.
by *Z. Thompson*, at Burlington, Vt., in 1850, xi, 436; in 1851, xiii, 350; in 1852, xv, 385, 459; in 1853, xvii, 445; in 1854, xix, 278.
at Eutaw, Ala., Jan. 1852, xiii, 294.
by *S. P. Hildreth*, at Marietta, Ohio, in 1850, xi, 239; in 1851, xiii, 237; in 1852, xv, 243; in 1853, xvii, 225; in 1854, xix, 234.
by *H. Gibbons*, at San Francisco, Cal., in 1851, '52 and '53, xiii, 434; xiv, 131, 283; xviii, 148; xix, 144, xx, 292.
at St. Bernard and Geneva, in 1850, xiii, 296.
by *C. Smallwood*, at St. Martin, Canada, in 1852, xvi, 77; in 1853, xvii, 287, xx, 139.
at Fellin, Russia, in 1848, xiv, 292.
Register kept at Knoxville, Tenn., 1852, xvii, 139.
system for sea and land, correspondence on, noticed, xiii, 301.
Meteorology, theory of atmospherical phenomena, in, *Dove*, xix, 31.
rains of temperate zone, *Dove*, xx, 399.
of Oroomiah, *Stoddard*, xx, 254.
of Mammoth Cave, xi, 334.
on variations in Temperature in Canada, from 1841 to 1852, *E. Sabine*, xvii, 143.
ibid, 1830–1852, *J. H Lefroy*, xiv, 135.
of U. S. Exploring Expedition, *C. Wilkes* on, noticed, xii, 446,
J. P. Espy's report on, noticed xiii, 450.
action of British government with reference to, xiii, 143.
Methylic alcohol, *Wohler*, xiv, 98.
Mexico, ascent of Popocatepetl in, xi, 266.
Mezquite gum, *G. Morfit*, xix, 263.
Micas, biaxial character of some supposed uniaxial, *W. P. Blake*, xii, 6.

Microscopes, comparison of Natchet's, &c., *J. L. Smith*, xi, 277.
and Microscopy, *W. I. Burnett*, xii, 56.
object-glasses for, improvements in, by *C. A. Spencer*, xiii, 31, 290.
L. Beale, on, noticed, xviii, 302.
of S & W. Grunow, xiv, 145, xx, 143.
Inverted, *J. L. Smith's*, xiv. 233.
for micrographic demonstrations, xix, 105.
with large angles of aperture, *E. D. North*, on, xvii, 221.
achromatic condenser, *J. L. Riddell*, xv, 69.
micrometer, *J. L. Smith*, xiv, 240.
method of exhibiting phenomena of diffraction with, *O. N Rood*, xv, 327.
on illuminating, *Riddell*, xv, 69.
mode of determining optical power of, *Harting*, xvii, 146.
Indicator for, *Bailey*, xx, 58.
binocular, *E. D. North*, xviii, 61.
ibid, *J. L. Riddell*, xv, 68.
ibid, *C. Wheatstone* on, xvii, 140.
Microscopic anatomy, *A. H. Hassall* on, noticed, xii, 451.
photographs, xiv, 288.
test-object, a new, *J. W. Bailey*, xix, 28.
Microscopical science, Quarterly Journal of, noticed, xvi, 142.
Microscopist, of *Wythes*, noticed, xii, 451.
Mikrogeologie of *Ehrenberg*, noticed, xix, 435.
Miller, Hugh, My Schools, &c., by, noticed, xvii, 454.
Miller's and *Brooke's* Mineralogy, reviewed, xv, 41.
Millon on wheat without gluten, xvii, 415.
Mills, R., strength of building stones, xi, 7.
Mine, copper, of Bristol, Conn., xx, 361.
of Tennessee, xix, 181, xx, 53.
Wheatley's, minerals of, xx, 242.
Mineral species, on the constitution and equivalent volume of some, *T. S. Hunt*, xvi, 203.
springs of Canada, xi, 174.
waters, titanium and zirconium in, xiv, 263.
Mineralogical collections, *Krantz's*, xii, 445.
notices, *J. D. Dana*, xi, 225; xii, 205, 387; xiv, 264; xv, 430.
ibid, *O. P. Hubbard*, xi, 423.
specimens for sale by Krantz, xii, 445.
Mineralogy, contributions to, *J. D. Dana*, xvii, 78, 210, 430.
contributions to, *F. A. Genth*, xvi, 81, 167; xviii 410; xix, 15.
Brooke and *Miller's* and Phillips's introduction to, reviewed, xv, 41.
of *J. D. Dana*, errata of, xi, 232.
Treatise on, by *C. U. Shepard*, noticed, xiv, 454.
assaying and mining, *B. Overman's*, noticed, xii, 150.
4th edition of System of, by *J. D. Dana*, noticed, xviii, 424.
Supplement to Dana's, *J. D. Dana*, xix, 353.
Mineralogia Elementos de, of Domeyko, noticed, xv, 431.
Mineralogie Elemente der, by Nauman, noticed, xv, 430.
Mineralogy, works on, published during the year 1852 and 1853 to middle of 1854, xviii, 425.
Minerals, American, analysis, &c. of, *Smith* and *Brush*, xv, 207, xvi, 41, 365.
J. L. Smith, xviii, 372, xx, 242.
G. J. Brush, xviii, 407.
F. A. Genth, xviii, 410.
T. S. Hunt, xiv, 340.
new localities, *F. B. Hough*, xii, 395.
ibid, *J. J. H. Gregory*, xii, 396.
of western North Carolina, *C. L. Hunter*, xv, 373.
of California, *Blake*, xx, 72.
accompanying Chromic Iron, *T. H. Garrett*, xv, 332.
associated with emery, xi, 53.
homœomorphism of, *J. D. Dana*, xvii, 86, 210, 430.
homœomorphism of trimetric species, *J. D. Dana*, xviii, 35, 131.
ibid, of dimetric and hexagonal systems, xviii, 131.
pseudomorphous xvii, 128, 129.
alteration of, by action of alkalies, *Delesse*, xvii, 450.
reaction of common salt in the formation of, *Forchhammer*, xix, 429.
hardness of, xi, 225.
artificial, in furnaces, *Hausmann*, xii, 394; xviii, 421.
W. P. Blake, xiii, 417.
Sandberger, xvii, 128.
of diopside molybdate of lead, aragonite, &c., xiv, 423, 424.
formation of, *Ebelmen*, xiii, 110, 411.
of several, *N. S. Manross*, xvi, 186.
dolomite, xvii, 128.
cabinet of, for sale, xi, 442.

MINERALS—

Achtarandite, a pseudomorph, xix, 354.
Aciculite in N. Carolina, *F. A. Genth*, xix, 17.
Actinolite in Bethel, Vt., xii, 396.
Ægirine, xi, 226.
Æschynite, analysis of, xi, 230.
Agalmatolite, Chinese name for, xii, 390.
Agate, structure of, xvii, 284.
Albite from Middletown, form of, xviii, 419.
Algerite, *T. S. Hunt*, xvii, 351; analysis, *J. D. Whitney*, xvii, 206; crystal of, xv, 440.
Alizite, analysis of, xv, 439.
Allanite, analyses, *F. A. Genth*, xix, 20; specific gravity of, Pennsylvania, *G. J. Brush*, xix, 354; orthite in Canada, xv, 441; Orange Co., N. Y., *E. L. Reakirt*, xvi, 84; from West Point, *C. Bergemann*, xiii, 416.
Allophane of Tennessee, *C. T. Jackson*, xix, 119.
Alstonite, *C. v. Hauer*, analysis, xix, 354.
Alum, mangano-magnesian, from Utah, xv, 434, xviii, 379, xix, 354.
Amethyst in New Hampshire, xii, 296; in North Carolina, xv, 376.
Analcime at Copper Falls, xv, 446; of Monte Catini, xii, 394.
Anauxite, *C. v. Hauer*, analysis, xix, 354.
Andalusite, analyses, *Damour*, xix, 354.

MINERALS—
Andalusite, relations of, with Staurotide and Topaz, xviii, 44.
Andesite, analysis of, xii, 392.
Anglesite of Phœnixville, forms of, xviii, 419; analysis, *Smith*, xx, 244.
Anhydrite, crystallization of, *Hausmann*, xii, 390, xiv, 266; homœomorphism with the Barytes Series, xvii, 88.
Anthophyllite, hydrous, analyses of, *Smith* and *Brush*, xvi, 49.
Antigorite, *Schweizer's* analyses not accurate, xix, 354.
Antimony, octahedral, from Algeria, xii, 208, xiv, 275; crystallization of, ibid; compared with white antimony, xvii, 88.
Antimony, white, Italian, *Meneghini*, xiv, 61; form of, xvii, 88.
Antimony, red, angles of, xi, 231.
Antimony ore in California, xx, 82.
Apatite, analysis, *C. T. Jackson*, xi, 402; analysis, *J. D. Whitney*, xvii, 209; in Canada, *T. S. Hunt*, xix, 354; of Essex Co., N. Y., *W. P. Blake*, xiv, 105; in Gouverneur, xii, 395; of Snarum, xii, 214; pseudo-apatite an impure, xv, 434.
Aphrosiderite, analysis, *C. v. Hauer*, xix, 355; note on, by *J. D. Dana*, xix, 355; formula of, xviii, 129.
Apophyllite, analysis, *E. L. Reakirt*, xvi, 84; of Lake Superior, xviii, 380, 419.
Arœoxene, character of, *v. Kobell*, xii, 206.
Argentiferous Galena from Arkansas, xv, 450.
Arkansite, is Brookite, xi, 229.
Aragonite of Hoboken, *Smith* and *Brush*, xv, 215; at Monte Vasa, xii, 393; in Northern New York, xii, 396; of Thurnberg, xv, 434; artificially formed, xiv, 423, 424.
Arsenic, Sulphurets of, in Koordistan, xiv, 103.
Arsenical Nickel, analysis, xv, 447.
Arsenikkies, reference to analyses, xix, 364.
Arsenomelan, *v. Waltershausen*, xix, 355.
Asphaltum of Trinidad, xx, 153.
Atacamite, analysis, *F. Field*, xix, 355.
Atheriastite, an altered scapolite, xii, 219.
Augite, see *Pyroxene*.
Aurotellurite, angles and axes, xviii, 51.
Automolite, locality in Vermont, xix, 355.
Azurite, at Wheatley's Mine, xx, 250.
Babingtonite? crystal of, xviii, 417.
Ballesterosite, a pyrites containing tin, xiv, 265.
Baltimorite, xiv, 269; *Kenngott*, xix, 355; note on, *J. D. Dana*, xix, 356.
Barnhardtite, *F. A. Genth*, xix, 17.
Barytes, forms of, xviii, 419; analysis, *Riegel*, xv, 434; in Northern New York, xii, 395, xiv, 267; of Nutfield, Eng., xiv, 267.
Barytocelestine, analysis of, xix, 356.
Baulite, remarks on, xix, 356.
Beckite, *Kenngott*, xix, 356.
Berthierite in the Vosges, xv, 443.
Beryl, analyses of, xv, 442; and Quartz, isomorphism of, *E. J. Chapman*, xiv, 272; in N. H., large, *O. P. Hubbard*, xiii, 265; at Royalston, Mass., xii, 397.

MINERALS—
Beudantite, analysis of, xi, 231; of Levy, xii, 390.
Biotite of Greenwood Furnace, *C. v. Hauer*, xix, 356; *Smith* and *Brush*, xvi, 45; of Putnam Co., N. Y., ibid, xvi, 46.
Bismuthine, in N. Carolina, *F. A. Genth*, xix, 16.
Bismuth ores at Haddam, xii, 220.
Bitumen Springs in California, *Blake*, xix, 433, xx, 84.
Black copper of Perm iron works, Russia, xiv, 275.
Black oxyd of copper, analysis of, xi, 232.
Blende, white, of New Jersey, xii, 221; at Wheatley's Mine, xx, 250.
Bog ore in Illinois, *G. J. Brush*, xiv, 112.
Bohnerz of Kandern, xix, 356.
Boltonite is Chrysolite, *J. L. Smith*, xviii, 372; analysis, *C. v. Hauer*, xix, 356; note on, *J. D. Dana*, xix, 356.
Boracic acid, compounds of, Tuscany, *Bechi*, xvii, 129, xix, 121.
Borax of Tuscany, xvii, 129.
Borocalcite of Peru, *A. A. Hayes*, xviii, 95.
Boulangerite, Italian, *Meneghini*, xiv, 60.
Bowenite is Serpentine, *Smith* and *Brush*, xv, 212.
Braunite of Elba, *Meneghini* xiv, 62.
Breislakite is Augite, xi, 226.
Brevicite, analysis, *E. Tobler*, xix, 357.
Brochantite, artificial, xiv, 423.
Brongniardite, *L. Sæmann*, xix, 357.
Bronzite, analysis, *Garrett*, xv, 332.
Brookite of Urals, crystals of, *Kokscharov*, xi, 228, xiv, 274; Brookite and Columbite, homœomorphism of, xvii, 86.
Brookite and Eumanite, identical, xii, 397.
Brucite, crystallization of, xvii, 83; in Texas, Penn, xix, 357; in the Vosges, xii, 217.
Buratite in Tuscany, xii, 393; in Pennsylvania, xx, 412.
Byssolite, prismatic angle of, xi, 226.
Bytownite described, xii, 212; *T. S. Hunt*, xix, 429.
Cacoxene, analysis, *C. v. Hauer*, xix, 357.
Calamine, at Wheatley's Mine, xx, 250.
Calamine and Electric Calamine, reference, xii, 221.
Calcite, crystallization of, xv, 434; isodimorphous with tourmaline, xvii, 216; limestone of Madeira, xix, 357; of Bristol, Conn., form of, xviii, 421; at Wheatley's Mine, xx, 250.
Calyptolite, description of, xii, 210.
Caporcianite, description of, *Meneghini*, xiv, 62.
Carmine spar, description of, xii, 207.
Carpholite, analysis of, *v. Hauer* xix, 357.
Carpholite after Wolfram, xvii, 129.
Carrara marble, analysis, xv, 434.
Carrolite, *W. L. Faber*, xiii, 418; a copper Linnæite, *Smith*, xvi, 366,
Celestine, crystallization, xii, 214.
Cerusite, in N. York, xii, 396; of Durham, England, xv, 446; after Linarite xvii, 129; at Wheatley's Mine, xiii, 116, xx, 245.
Chalcedony in North Carolina, xv, 376.

MINERALS—
Chalcodite, description of, *C. U. Shepard*, xiv, 265.
Chalcopyrite, Italian, *Meneghini*, xiv, 61; of Norway, xiv, 277; at Wheatley's Mine, xx, 249.
Chalcotrichite, trimorphous, xi, 232; of Pa., xiii, 117.
Chalilite, analysis of, *Hauer*, xix, 357.
Chesterlite, *Smith* and *Brush*, xvi, 42.
Chiastolite, angle and composition of, xi, 226.
Childrenite, analysis of, *Rammelsberg*, xv, 435.
Chiolite and Chodneffite, angles and analysis, xiv, 267.
Chiolite, form of, *Kenngott*, xix, 357.
Chlorid of iron, in meteorites, *J. L. Smith*, xix, 159.
Chlorite, analyses, xi, 64, 225; polarization of Achmatowsk, *W. P. Blake*, xiii, 116; of the Urals, *Kokscharov* on crystals of, xv, 437; in the Vosges. xii, 216; chrome, xiv, 269; see Clinochlore.
Chlorite section of Silicates, formulas of, *J. D. Dana*, xviii, 128.
Chloritoid, with emery, a new variety, xi, 62; *Hermann*, xiv, 269; formula of, xviii, 129; of Bregratten, *von Kobell*, xviii, 272.
Chloropal, *Kenngott*, on oxygen ratio, xix, 358.
Chlorophyllite, altered iolite, *Kenngott*, xix, 358.
Chodneffite, angles and analysis of, xiv, 267.
Chondrodite, crystallization of, *J. D. Dana*, xv, 448; in Northern N. York, xii, 395.
Chrismatine, a mineral resin, *Germar*, xiv, 265.
Chrome earth, Italian, *Meneghini*, xiv, 62.
Chrome-chlorite, xiv, 269.
Chrome ore, analysis, *T. Garrett*, xiv, 45.
Chromic iron of Baltimore, xii, 220; of Pennsylvania, xiv, 45; in California, xiv, 274; Italian, *Meneghini*, xiv, 62.
Chrysocolla, analysis of, xv, 447.
Chrysolite in the Vosges, xii, 217; includes Boltonite, *Smith*, xviii, 372, xix, 356; in meteoric iron of Atacama, xiv, 275.
Chrysolite slag, Pa., *C. T. Jackson*, xix, 358.
Chrysotil of New Jersey, analysis, *F. A. Genth*, xviii, 410, xix, 358.
Cinnabar, crystallization of, xv, 447; of California, analysis of, xv, 447; of California, xvi, 137, xvii, 438, xx, 80; in Corsica, xii, 390; in Spain, xi, 266.
Clinochlore, examination of, *W. P. Blake*, xii, 339; analysis, *W. J. Craw*, xiii, 222; crystal of, xv, 430, xvi, 447; of Achmatowsk, *Kokscharov*, xix, 176, 358; of the Tyrol, *von Kobell*, xviii, 272.
Clintonite, analysis, *Plattner*, xix, 358; formula of, xviii, 129, 409; *G. J. Brush*, xviii, 407.
Columbite of Haddam, analysis of, *T. S. Hunt*, xiv, 340.
Columbite and Brookite, homœomorphism of, xvii, 86.

MINERALS—
Conistonite, description of, *R. P. Greg*, xvii, 333, 440.
Copiapite, analysis of, *J. L. Smith*, xviii, 375, xix, 358.
Copper, black, of Perm iron works, Russia, xiv, 275.
Copper, black oxyd of, analysis of, xi, 232.
Copper Glance, crystals of, xviii, 417; Italian, *Meneghini*, xiv, 61.
Copper-mica, of Andreasberg, xi, 232.
Copper, native, of Lake Superior, xv, 446.
Copper nickel of Ayer, xii, 221.
Copper ores of Australia, xv, 447; in California, xx, 80.
Copper ore containing gold, in Chili, xv, 446.
Copper ore of the Upper Mississippi, *D. D. Owen*, xv, 446.
Copper ores of Spain, xi, 262.
Copper pyrites, see *Chalcopyrite*.
Copper, sulphate and carbonate of, from Bristol, Ct., xii, 222, 283.
Corneous lead, near Matlock, xii, 388.
Corundophyllite, description of, xii, 211.
Corundum in North Carolina, *C. L. Hunter*, xv, 376.
Couzeranite, *Kenngott*, xix, 358.
Crednerite, formula of, *E. J. Chapman*, xiv, 272.
Cronstedtite, formula of, xviii, 129.
Cuban, analysis of, *J. L. Smith*, xviii, 381, xix, 358.
Cummingtonite, a hornblende, *Smith* and *Brush*, xvi, 48.
Danburite, analysis, *Smith* and *Brush*, xvi, 365; specific gravity, *Brush*, xix, 358.
Datholite, analysis of Tuscan, *Bechi*, xix, 358; crystals of, xvii, 215; ibid, *Hess*, xix, 358; of Isle Royal, *Whitney*, xv, 435.
Datholite and Euclase, homœomorphous, xvii, 215.
Davyne, a variety of nepheline, *Scacchi*, xii, 393.
Dechenite, description, xii, 208.
Delessite, formula of, xviii, 129; of Naumann, xii, 218.
Delvauxene, (Delvauxite,) analysis of, *C. v. Hauer*, xix, 359.
Descloizite, new species, xvii, 434; crystallization of, xviii, 131.
Diabase and diorite, of the Alps, xii, 391.
Diallage in the Vosges, xii, 216.
Diamond, Koh-i-noor, xv, 144, xvii, 136; in Australia, xv, 433; large, of Brazil, xix, 288, 359; in North Carolina, *C. L. Hunter*, xv, 373.
Diaspore with emery, xi, 55; crystallization, xi, 56; description, xii, 215; in Trumbull, Conn., xix, 359.
Dimagnetite, described, *C. U. Shepard*, xiii, 392.
Dimorphin, xv, 431; forms, xviii, 49.
Diopside, furnace product, xiv, 423.
Dioptase, in Nassau, xii, 222.
Diorite of the Alps, xii, 392.
Dolomite, artificial, *Durocher* on, xvii, 128; of the Alps, *v. Waltershausen*, xix, 359; of Coral Islands, *T. S. Hunt*, xix, 429; of Hoboken, crystal of, xviii, 420; of Texas, Pa., *Garrett*, xv, 334.

MINERALS—
Dopplerite, in Styria, described, xi, 225.
Dufrenoysite, analysis of, *v Waltershausen*, xix, 359.
Dysyntribite, of Northern New York, xii, 209; composition, *Smith* and *Brush*, xvi, 50.
Edingtonite, analysis, *Heddle*, xix, 359.
Ehlite, from Ehl, *Kenngott*, xix, 359.
Elæolite of Arkansas, analysis, xvi, 371.
Electric calamine, see *Calamine*.
Emerald of New Grenada, xiv, 274.
Emerald Nickel, analysis, *T. H. Garrett*, xv, 332; ibid, *Smith* and *Brush*, xvi, 52.
Emery, minerals associated with, *J. L. Smith*, xi, 53.
Emery in North Carolina, xv, 376.
Emerylite, description of, *J. L. Smith*, xi, 59; formula for, *G. Rose*, xv, 442; identical with margarite, *Smith* and *Brush*, xv, 207; *Hermann's* analysis referred to, xv, 46, 442; at Katharinenberg, xii, 390.
Enargite, description of, xii, 206.
Ephesite, described, xi, 59.
Epidote, analysis, xii, 391; constitution of, *R. Hermann*, xii, 219, xv, 442; ibid, *Rammelsberg*, xii, 219, xiv, 273.
Erubescite, Italian, *Meneghini*, xiv, 61; Norway, xiv, 277.
Euclase, analysis, xv, 442; homœomorphism with Datholite, xvii, 215; ibid, with Sphene, xvi, 96.
Eukolite, form of, *L. Sœmann*, xix, 359.
Eumanite, angles of, xii, 211, 393, xiii, 117; and Brookite, identical, xii, 397.
Euphyllite, analyses of, *Smith* and *Brush*, xv, 209.
Eupyrchroite, analysis of, *C. T. Jackson*, xii, 73.
Euxenite, form and composition, *D. Forbes*, xix, 359; note on, *J. D. Dana*, xix, 360.
Fahlerz, see *Gray Copper*.
Feather ore, Italian, *Meneghini*, xiv, 60.
Feldspar, analyses, xii, 219; glassy, angles of, xv, 433; in Belgium, xi, 226; of the Lake Superior Region, analysis of, xv, 440.
Feldspars, formulas of, *T. S. Hunt*, xviii, 270; reference to Scheerer on, xix, 360.
Felsobanyite, description, *Haidinger*, xix, 360.
Ficinite, description, *Kenngott*, xix, 360.
Fischerite, crystallization of, *N. Kokscharov*, xv, 449.
Fluolite from Iceland, *Kenngott*, xix, 360.
Fluor of Illinois *Brush*, xiv, 112; at Wheatley's Mine, xx, 251.
Forsterite is anorthite, xii, 393.
Fowlerite, analysis, *W. Camac*, xiv, 418; ibid, *Rammelsberg*, xv, 438.
Franklinite, on Abich's analysis, *G. J. Brush*, xix, 360; *A. C. Farrington* on magnetic character of vein of, xv, 445.
Gabbro Rosso, nature of, *Murchison*, xi, 206.
Gadolinite in Ireland, xi, 219.
Galactite, description of, *Kenngott*, with note by *J. D. Dana*, xix, 361.
Galena in fluor spar, in Illinois, xiv, 112; analysis of Italian, *Meneghini*, xiv, 60.
MINERALS—
Galena of Macomb, N. Y., xii, 395; of the upper Mississippi, xv, 446; argentiferous, in Arkansas, *W. W. Mather*, xv, 450.
Garnet in Bavaria, analysis, xi, 226; in Grafton, New Hampshire, xii, 396; in the serpentine of the Vosges, xii, 216; of Gustafsberg, *Bahr*, xiv, 273; of Urals, *Kokscharov*, xiv, 274; of Haddam, analysis, xv, 441; from Brevig, *C. Bergemann*, xiv, 273, xv, 441; resembling Schorlomite, *C. Bergemann*, xv, 441; of Yonkers, analysis, *Taylor*, xix, 20; black, in Chester Co., Pa., xix, 361.
Geocronite in Louisa Co., Va., description of, xix, 19.
Gibbsite, absence of phosphoric acid, *B. Silliman*, Jr., xi, 121; analyses, *Smith* and *Brush*, xvi, 56.
Gieseckite, analysis, *C. v. Hauer*, xix, 361.
Glaserite and Anhydrite, isomorphism of, *Hausmann*, xiv, 266.
Glaucodot at Orawitza, xii, 221.
Gneiss, analysis of, xix, 430.
Gold, crystal of, *C. U. Shepard*, xv, 448; in Arkansas xii, 143; of Australia, xii, 445, xiii, 118, 297, xiv, 440, xvi, 298; xvii, 279, xix, 289; in the British Islands, xi, 232, xvi, 420; of California, xii, 390, xviii, 156, 441, xx, 72; of Canada, xi, 117, xv, 448; with copper ore in Chili, xv, 446; of Darien, xi, 118; of New Grenada, xii, 390; in N. Carolina, *Hunter*, xv, 375; in Pennsylvania, xv, 448, xix, 290; in Spain, xi, 260; in Vermont, xv, 147; at Beresofski with Galena, xix, 361.
Graphite at St. Johns, N. B, xiv, 280.
Gray Copper, of Algiers, xii, 222; of N. Carolina, *Genth*, xvi, 83, xix, 19; of Virginia, *Genth*, xix, 18; of Italy, xiv, 60.
Gurolite, see *Gyrolite*.
Gymnite, from Tyrol, described, xv, 435.
Gypsum homœomorphous with Heulandite, xvii, 85; in Virginia, *H. D. Rogers*, xviii, 273.
Gyrolite, description, xii, 205; note on, *L. Sœmann*, xix, 361.
Halloysite, analysis, etc., xii, 218.
Haydenite, crystallization, xvii, 82.
Hayesine of Tuscany, xvii, 129.
Heavy Spar, see above *Barytes*.
Helvin, analysis, *Rammelsberg*, xix, 362. formula of, *E. J. Chapman*, xiv, 272.
Herrerite identical with Smithsonite, *F. A. Genth*, xix, 368, xx, 118.
Heteromerite, analysis of, *Kenngott*, xix, 362.
Heterosite of Limoges, analysis of, xv, 445.
Heulandite and Gypsum, homœomorphous, xvii, 85; near Philadelphia, xiv, 273; *E. Zschau*, xx, 272.
Hone slate of the Lake Superior Region, xv, 439.
Hornblende, analysis, etc., xii, 388, 391, 392; Nordenskioldite, *Kenngott*, xix, 362.
Houghite of St. Lawrence Co., N. Y., xii, 210; *S. W. Johnson* on, xii, 361; probable identity of, with Volknerite, *J. D. Dana*, xii, 365.

MINERALS—
Hudsonite, analysis, *Smith* and *Brush*, xvi, 369; xix, 362; cleavage of, *Kenngott*, xix, 362; note on, *J D. Dana*, xix, 362.
Humboldtine in Canada, xi, 231.
Humboldtite, analysis of, *Meneghini*, xiv, 65.
Humite, crystals of, *A. Scacchi*, xiv, 175; observations on, *J. D. Dana*, xiv, 175.
Hyalophan, analysis, etc., *v. Waltershausen*, xix, 362; note on, *J. D. Dana*, xix, 363.
Hydrargillite with emery, xi, 55; of Brazil, xii, 215; of Pennsylvania, xi, 267.
Hydraulic limestone of Chablais, xiv, 279.
Hydromagnesite, analysis, etc., *Smith* and *Brush*, xv, 214; crystallization, xvii, 84.
Hydrous anthophyllite, analysis, *Smith* and *Brush*, xvi, 49.
Idocrase, crystals of, from Maine, xviii, 419; of Tennessee, *Mallet*, xx, 85.
Ilmenite, see *Titanic Iron.*
Iodic Silver or Iodyrite, analysis, *J. L. Smith*, xviii, 374; analysis of, *Damour*, xix, 363.
Irodosmine of California, xiv, 277; xv, 246; in Canada, xv, 448; in the Urals, xix, 363.
Irite crystals of, xi, 232.
Iron, chlorid of, in meteorites, xix, 159.
Iron, Chromic, see *Chromic Iron.*
Iron, meteoric, Africa, xv, 1, 13; of Canada, xix, 417; of Georgia, xvii, 328, 331; of Greenland, xix, 430; of Ireland, xi, 37; of Kentucky, xi, 40; of Mexico, xiii, 289, xv, 19, xviii, 369, xix, 160, 161, 163; of New Mexico, xvii, 239; of New York, xiv, 439, xv, 363; of North Carolina, xv, 9, xvii, 327; of Pennsylvania, xi, 40; of Prussia, xiii, 142; xv, 19, 20; of South Carolina, xv, 5; of Tennessee, xvii, 131, 325, 329, xix, 153, 159; numerous specimens, xv, 7, et seq.
Iron, molybate of, see *Molybdate.*
Iron, native in carbonized wood, *Bahr*, xiv, 275; in basalt, *Andrews*, xv, 443.
Iron-natrolite, description of, *C. Bergemann*, xiv, 270.
Iron ore, bog, in Illinois, xiv, 112.
Iron ore of the Des Moines Coal Fields, xv, 444.
Iron ores of Lake Superior Region, xv, 444.
Iron, protosulphuret, analysis and remarks on, *J. L. Smith*, xviii, 380; xiv, 156, 367.
Jamesonite, Italian, *Meneghini*, xiv, 60.
Jenkinsite, analysis, *Smith* and *Brush*, xvi, 369; in Orange Co., N. Y., description of, *C. U. Shepard*, xiii, 392.
Kæmmererite, *Hermann*, xiv, 269; (Rhodochrome), angles of, xv, 438; of Penn., analysis of, *T. H. Garrett*, xv, 332; (Pyrosclerite), description of, xv, 438; remark on name, &c., *F. A. Genth*, xvi, 169.
Karstenite, see *Anhydrite.*
Katapleiite in Norway, xvi, 412.
Keilhauite, description of, *D. Forbes*, xix, 363; note on, *J. D. Dana*, xix, 363; formula, xviii, 130.
Kerolite of Unionville, Pa., description of, *Smith* and *Brush*, xv, 211.
Kupferwismutherz, analyses, xix, 370.

MINERALS—
Kyanite, analyses, *Smith* and *Brush*, xvi, 49, 371; in North Carolina, xv, 377.
Labradorite of Canada, analysis, xii, 213; of Maui, analysis, etc., xi, 121.
Lagonite of Tuscany, analysis of, *Bechi*, xvii, 129; xix, 120.
Lancasterite, analyses and remarks on, *Smith* and *Brush*, xv, 213.
Lanthanite, from Pennsylvania, account of, *W. P. Blake*, xvi, 228; analysis, *J. L. Smith*, xviii, 378, 427; in Sweden, xviii, 379.
Lapis Lazuli in the Andes, xv, 442.
Larderellite, description of, *E. Bechi*, xvii, 129, xix, 121.
Laumonite of Storr on Skye, xv, 440; homœomorphous with Pyroxene, xviii, 130.
Lavas, composition of, *Rummelsberg*, xii, 392.
Lazulite in N. Carolina, xv, 376; ibid, analyses, *Smith* and *Brush*, xvi, 370.
Lead, arsenate of, see *Mimetene.*
Lead, origin of ores of, (reference,) xii, 390.
Lead, corneous, near Matlock, xii, 383.
Lead, molybdate of, see *Wulfenite.*
Lead ores of Penn., xiii, 116, xvi, 422, xx, 244. See further, *Galena.*
Lead, vanadate of, in Penn., xix, 127.
Leadhillite in South Carolina, xv, 446; relations in form, to Anglesite, xviii, 249.
Lenzinite, analysis of, xii, 218, 219.
Leonhardite of Copper Falls, xv, 440.
Leopardite in North Carolina, xv, 377.
Leuchtenbergite, remark on, *Breithaupt*, xii, 217; crystallization, *Kenngott*, xix, 364.
Leucite changed to ryacolite, xii, 393.
Leucopyrite, angle of, xviii, 49.
Liebigite, description and localities of, *J. L. Smith*, xi, 259.
Lievrite, angles of, xviii, 45; (supposed) of Orange Co., N. Y., xiii, 117 (diamagnetite).
Lignite in Spain, xi, 264.
Limestone, alum, analysis of, xi, 4; of Herzogthums Nassau, analyses of, (reference,) xiv, 279; of Predazzo, analyses of, xii, 214; crystalline, of N. America, *T. S. Hunt*, xviii, 193, xix, 371; crystalline, of the Vosges, xiv, 278, xvii, 127.
Limonite at Wheatley's mine, xx, 25; containing vanadium, xv, 444.
Linnæite (Carrollite), analyses and remarks on, *Smith* and *Brush*, xvi, 366.
Loganite, description of, *T. S. Hunt*, xii, 387, xiv, 268; angles of, xiv, 268.
Loxoclase, analyses, *Smith* and *Brush*, xvi, 43; of Hammond, N. Y., form of, xviii, 419.
Magnesite, analyses of, xi, 225; in Lower Canada, *T. S. Hunt*, xix, 429.
Magnetic pyrites, see *Pyrrhotine.*
Magnetite in California, xx, 82.
Malachite, artificially formed, xiv, 424; at Wheatley's mine, xx, 249.
Malacone of the Ilmen Mts., xiv, 274, xx, 273.
Manganese, distribution of, xiii, 9.
Manganese ore, origin of, (reference,) xii, 390; from India, xv, 444; from Klapperud, *Bahr*, xiv, 276; of the Pyrenees, (reference,) xii, 221.

MINERALS—
Mangano-magnesian Alum, from Utah, analysis of, *J. L. Smith*, xviii, 379, xix, 354; in S. Africa, xviii, 379.
Marasmolite, description of, xii, 210.
Marble of Carrara, analysis of, xv, 434; of Lake Superior Region, (reference,) xv, 434.
Marcasite, relation in form to Sulphur, xviii. 51.
Margarite, *Hermann*, xiv, 269; analysis and formula of, xiv, 269, xviii, 129; identical with Emerylite, xiv, 270, xv, 46, 207, 442.
Margarodite of Monroe, Ct., analyses of, *Smith* and *Brush*, xvi, 46; of St. Etienne, *Delesse*, xvi, 46.
Marmatite, in Tuscany, analysis, xiv, 61.
Martite (octahedral oligist iron), remarks on, *T. S. Hunt*, xiii, 370.
Masonite, analysis and formula of, *J. L. Smith*, xi, 64; *Hermann* on, xiv, 269.
Matlockite, analysis, *Rammelsberg*, xv, 446; angles, *Kenngott*, xix, 364; description, xii, 388.
Meionite and Mizzonite, angles compared, *Scacchi*, xiv, 271.
Melan-asphalt, analysis of, *C. M. Wetherill*, xvii, 130.
Melanite in Pennsylvania, xix, 361.
Melinite, analysis of, *v. Hauer*, xix, 364.
Melinophane, a new mineral, analysis of, *Th. Scheerer*, xv, 432.
Meneghinite, analysis and formula of, xiv, 60.
Mengite, crystallization of, xi, 229.
Mercury, see *Cinnabar*.
Mesotype of Laurvig, analysis of, *Gmelin*, xii, 218.
Mica, optical characters of, *W. P. Blake*, xii, 6; ibid, *Grailich*, (reference,) xix, 364; ibid, *Senarmont*, xiv, 268; twin crystal of, *Ettling*, (reference,) xv, 441; of Litchfield, Ct., analyses of, *Smith* and *Brush*, xv, 210; with Emery, analyses, *Smith*, xi, 62; at Royalston, Mass., xii, 396; analyses, &c., *Hermann*, xiv, 269; of Chester Co., Pa., analysis of, *Smith* and *Brush*, xvi, 47; of Vesuvius, measurement of, *Kokscharov*, xix, 364.
Millerite, in Pennsylvania, xiii, 117.
Mimetene in Cumberland, Eng., *C. Rammelsberg*, xix, 364; of Wheatley's Mine, Penn, xix, 127, 364; of Zacatecas, *C. Rammelsberg*, xii, 222; at Wheatley's mine, crystal, etc., xx, 248.
Misenite, a new sulphate of potash, *A. Scacchi*, xii, 393, xv, 433.
Mispickel, crystal of, xviii, 417; reference to analyses, xix, 364.
Misy from near Goslar, description of, xii, 220.
Mizzonite, angles, *Scacchi*, xiv, 271.
Molybdate of iron, in California, xiv, 279; in Georgia, xix, 364, 429.
Molybdate of Lead, see *Wulfenite*.
Molybdenite in Canada, xix, 364; near Reading, Pa., xv, 443.
Monrolite, identical with Kyanite, *Smith* and *Brush*, xvi, 49.
Montmorillonite in France, formula of, xv, 433.
MINERALS—
Mosandrite, on formula of, xviii, 254; note on, *L. Sœmann*, xix, 364.
Nacrite slates of the Green Mts., *T. S. Hunt*, xix, 417.
Native Iron, see *Iron*.
Natrolite of Renfrewshire, xv, 440.
Natrolite, Iron-, description of, xiv, 270.
Natrolite, Palæo-, reference to, xix, 365.
Nemalite, in N. Jersey, analysis, xi, 225; in the Vosges, xii, 217.
Nepheline, angles of, *Scacchi*, xiv, 271.
Nepheline rock of *Löbau*, xii, 391.
Nephrite, analyses of, *T. Scheerer*, xiv, 39.
Nickel, arsenical, analysis of, xv, 447.
Nickel, on some Canada ores of, *T. S. Hunt*, xix, 417.
Nickel, sulphuret of, of Pa., xiii, 117.
Nickeliferous iron pyrites at Gouverneur, N. Y., xv, 444.
Nickeliferous magnetic pyrites, analysis, *M. H. Boye*, xiii, 219.
Nitre in Illinois, *G. J. Brush*, xiv, 112; dimorphism of, xix, 364.
Nordenskiöldite, a tremolite, *Kenngott*, xix, 362.
Novaculite of the Lake Superior Region, xv, 439.
Octahedral antimony, see *Antimony*.
Octahedral Iron, see *Martite*.
Oligoclase in Bohemia, *v. Hauer*, xix, 364; of Danbury and Haddam, Conn., analyses, *Smith* and *Brush*, xvi, 44; and Unionite, identity of, xv, 211.
Olivine, see *Chrysolite*.
Opal, analyses, *G. Bischof*, xv, 435; from Asia Minor, analyses, xv, 435.
Orangite of Brevig, analysis, etc., *C. Bergemann's*, xii, 280, 387; analysis, *Damour*, xv, 442.
Orpiment, remark on, *Kenngott*, xix, 365; in Koordistan, xiv, 103.
Orthite in Pennsylvania, analysis of, xi, 228; near Dresden, (reference,) xv, 441; See further, *Allanite*.
Orthoclase of Danbury, Conn., analysis of, *Smith* and *Brush*, xvi, 44; see further *Feldspar*.
Osteolite, a new mineral, analysis of, xv, 431.
Oxalate of iron, (Humboltine,) in Canada, xi, 231.
Owenite, description of, *F. A. Genth*, xvi, 167, xviii, 411; identical with Thuringite, *J. L. Smith*, xvii, 131, xviii, 376.
Ozarkite, analysis, *C. U. Shepard*, xii, 218; is Thompsonite, *Smith* and *Brush*, xvi, 50.
Ozocerine, (Ozocerite,) *Hofstädter*, (reference,) xix, 365.
Paisbergite, analysis of, *Igelström*, xiv, 264.
Palæo-natrolite, xix, 365.
Palagonite, Scheerer on, xix, 365.
Paracolumbite at Taunton, Mass., xii, 209.
Parophite, analysis of, *T. S. Hunt*, xvii, 127.
Partschin, description of, *W. Haidinger*, with note on by *J. D. Dana*, xix, 365.
Pectolite of Isle of Syke, xv, 439.
Pennine, crystallization of, *Fröbel*, xv, 433.
Peristerite of Canada, described, *T. S. Hunt*, xii, 212.

MINERALS—
Perthite of Canada, described, *T. S. Hunt*, xii. 212.
Petalite, analysis, *C. Rammelsberg*, xv, 278; angles, *Hermann*, xv. 441; of Bolton, Mass., *Smith* and *Brush*, xvi, 373.
Phenacite and Quartz, isomorphism of, *E J. Chapman*, xiv, 272; ibid, with Willemite, etc, *J. D. Dana*, xvii. 212.
Phlogopite, remarks on, *Kenngott*, and notes by *J D. Dana* and *B. Silliman, Jr.*, xix. 365; in Gouverneur, N. Y, xii, 336; of the Vosges, xv, 441.
Pholerite with emery, described, *J. L. Smith*, xi, 58.
Picranalcime, description of, *Meneghini*, xiv, 62; clear crystals of, xix, 366.
Picrolite of Silesia, analysis, xii, 217.
Pierothomsonite, description, *Meneghini*, xiv, 63.
Pimelite, analysis, *W. Baer*, xv, 439.
Pinite, after Labradorite, analysis, xvii. 128.
Pipe clays of Nassau, analysis, xv, 439.
Pitchstone Porphyry of Isle Royale, analysis, *C. T. Jackson*, xi, 401; ibid, *Foster* and *Whitney*, xvii, 128.
of Sardinia, *Delesse*, xix, 366, 367.
Pitkarandite, analysis, *Scheerer*, xix, 366.
Placodine, analysis, etc., *Schnabel*, xiv, 276.
Platinum, note on the name, xviii, 447, xix, 366; note on the discovery of, xviii, 447; in California, xiv, 277; xv, 246, xviii, 156, xx, 79; in Canada, xv, 448.
Plumbocalcite, analysis of, *v. Hauer*, xix, 367.
Polianite and Göthite, homœomorphism of, xvii, 213, xviii, 46.
Polycrase, form of, xi, 230, xviii, 46.
Polyhalite, analyses, *Behnke* and *Dexter*, xix, 367.
Polymignite, form of, xi, 230, xviii, 46.
Porphyry, pitchstone, of Lake Superior, *C. T. Jackson*, xi, 401.
red antique, analysis, *Delesse*, xii, 392.
Portite, description of, *Meneghini*, xiv, 63.
Prosopite, form of, *J. D. Dana*, xvii, 452; xx, 274; reference to *Scheerer* on, xix, 367; *G. J. Brush* on, xx, 273.
Pyrites, crystals of, xviii, 417; specific gravity, *Kenngott*, xix, 367; in Hartford, Vt., xii, 396.
Pyrites, copper, see *Chalcopyrite*.
Pyrites, magnetic, see *Pyrrhotine*.
Pyrites, nickeliferous magnetic, analysis of, xiii, 219.
Pyrites, nickeliferous, at Gouverneur, N.Y., xv, 444.
Pyrites, stanniferous, Ballesterosite, from Galicia, xiv, 265.
Pyrochlore, remarks on, xi, 229; of Urals, *Kokscharov*, xiv, 274.
Pyromeride of the Vosges, *Delesse*, xvii, 127.
Pyromorphite, Wheatley's mine, xx, 247.
Pyrophyllite, analysis, *F. A. Genth*, xviii, 419; of North Carolina, formula of, xix, 367.
Pyroretin, in Bohemia, analysis, *Reuss*, xix, 367.
MINERALS—
Pyrosclerite, (Kæmmererite,) analysis, xv, 332, 438; formula of, xviii, 129; of the Vosges, xiv. 278.
Pyroxene, remarks on, *Rammelsberg* and *Sandberger*, xii, 383: analyses, *T. Scheerer*, xiv. 40; *Hermann* on, xv, 437; of the Vosges, *Delesse*, xiv, 278; analysis, *E. Tobler*, xix, 367; crystal, xviii, 417.
Pyroxenic rocks, *E. Söchting* on, xix, 367.
Pyrrhotine, analysis, formula and remarks, *J. L. Smith*, xviii, 380; xix, 156, 367.
Quartz, large crystals of, xi, 423, xv, 435; with trap in India, xi, 424; in New Hampshire, xi, 423; in Vermont, xi, 423; xv, 435; new forms of, *J D Dana*. xviii, 417; new form of compound crystal, *G. Rose*, xii, 215; from Quebec, Canada, xviii, 417; *Descloizeaux* on, xx, 270.
Quicksilver, see *Cinnabar*.
Raphilite of Canada, analysis of, xii, 213.
Red antimony, angles of, *Kenngott*, xi, 231.
Realgar in Koordistan, xiv, 103, 104.
Red zinc, see *Zinc oxyd*.
Remingtonite in Maryland, *J. C. Booth*, xiv, 48.
Retinalite, analysis *T. S. Hunt*, xii, 213.
Retinite, analysis of, *Delesse*. xix, 369.
Rhodochrome *Hermann*, xiv, 209; see *Rhodophyllite*.
Rhodonite of New Jersey, analysis of, xv, 438.
Rhodophyllite (Pyrosclerite) of Penn., *F. A. Genth*, xv, 438; identical with Rhodochrome, *Smith* and *Brush*, xvi, 47.
Ripidolite, formula of, xviii, 129; identity with Clinochlore, *Kokscharov*, xix, 127, 176, 358.
Rutherfordite in N. Carolina, *C. U. Shepard*, xii, 209; *T. S. Hunt*, xiv, 344.
Rutile, an analysis of, *A. Demoly*, xi, 228; of Waterbury, Vt., xii, 389.
Saline efflorescence in Atacama, analysis of, xix, 368.
Salt and Gypsum of Virginia, *H. D. Rogers*, xviii. 273.
Samarskite, analysis of, *R. Hermann*, xi, 229; of N. Carolina, analysis, *T. S. Hunt*, xiv, 341; ibid, description of, *C. U. Shepard*, xii. 220.
Sanidin, xv, 433.
Saponite (in part called Thalite) in Minnesota, xiii, 420, 423, xvi, 368, xvii, 131.
Sapphire, red, in New Jersey, xiii, 116.
Savite, analysis of, *Meneghini*, xiv, 64.
Scacchite in Italy, *Scacchi*, xii. 393.
Scapolite, analysis. with remarks on the family, *R Hermann*, xiv, 271; on alteration of, *v. Rath*, xviii, 272; in Canada, analysis of, *T. S. Hunt*, xix, 368; *E. Zschau*, xx, 272; Wilsonite identical with, *Chapman*, xx, 269.
Schneiderite, analysis of, *Meneghini*, xiv, 64.
Schorlomite, analysis, *Rammelsberg*, xv, 443; formula of, xviii, 263.
Schreibersite, analysis and remarks, *J. L. Smith*, xviii, 380, xix, 156.

MINERALS—
Scleretinite, a new mineral resin, in England, xv, 433.
Scleroclase, analysis, etc., *v. Waltershausen*, xix, 355.
Scolecite of Mull, Scotland, xv, 440; analysis of, *F. A. Genth*, xviii, 410, xix, 368.
Scorodite in N. Carolina, *F. A. Genth*, xix, 23.
Seladonite, (reference,) xix, 368.
Selenite of Iowa, (reference,) xv, 431.
Selenium, density of, *Schaffgotsch*, xvii, 123.
Senarmontite in Algeria, described, xii, 208; crystallization of, xvii, 88.
Serpentine. *G. Rose* on origin of, xii, 215; in Canada, analyses. *T. S. Hunt*, xii, 213; xv, 436: of the Vosges, (reference,) *Delesse*, xii, 216; identity of Bowenite with, *Smith* and *Brush*, xv, 212; identity of Williamsite with, xiv, 267, xv, 212.
Serpentine pseudomorphs of Easton, Pa., xvii, 129, xix, 368.
Severite, analysis of, *C. v. Hauer*, xix, 368.
Silver, chloro-bromid, of Chili, analysis of, xv, 447.
Silver glance, Prince's Location, Lake Superior, xix, 368.
Silver, iodid, see *Iodid.*
Sismondine, analysis, xi, 64.
Sloanite, *Meneghini*, xiv, 64.
Smectite, analysis, etc., xii, 218, 219.
Smithsonite, Herrerite identical with, *F. A. Genth*, xix, 368, xx, 118.
Soapstone of Südermannland, analysis, *Bahr*, xiv, 268.
Sodalite-like mineral of Norway, description of, *Bore*, xiv, 270.
Specular Iron in Northern N. York, xii, 396.
octahedral, *T. S. Hunt* on, xiii, 370.
Sphene of Grenville, Canada, analysis of, xv, 442; in Northern New York, xii, 395; relation to Euclase, *Dana*, xvi, 96.
Spherulite, analysis of, *Delesse*, xix, 369.
Spinel, with emery, from Gumuch-dagh, *J. L. Smith*, xi, 58; in Northern N. York, xii, 395.
Spodumene, analysis, *Rammelsberg*, xv, 277; *Hermann*, xv, 440; of Norwich and Sterling, Mass., analysis of, *Smith* and *Brush*, xvi, 371; form of, xviii, 417; specific gravity, *J. L. Smith*, xix, 369; and augite, isomorphism of, xv, 278.
Staurotide, angles of, *Kenngott*, xi, 226; relations of, with Topaz and Andalusite, xviii, 44.
Steatite, analyses, *T. Scheerer*, xiv, 38; in Vermont, xii, 396.
Stilbite, remark on, xv, 441.
Stratopeite, description of, *Igelström*, xiv, 264, 265.
Strontianite in N. York, xiii, 264.
Strontiano-calcite, description, *F. A. Genth*, xiv, 280.
Struvite, crystallization, xviii, 131.
Sulphur near Cracow, *L. Zeuschner*, (reference,) xii, 390; in Upper Egypt, xiv, 278; of Hungary, brownish, xix, 369; in Koordistan, xiv, 104.

MINERALS—
Sulphur lake near Tivoli, Italy, *B. Silliman, Jr.*, xii, 258.
Sulphur waters of Asia Minor, *J. L. Smith*, xii, 11.
Sunadin, or glassy feldspar, angles of, xv, 433. (Should be *Sanidin.*)
Syenite, red, of Egypt, composition of, *Delesse*, xii, 393.
Sylvanite, ratio of metals in, *Kenngott*, xix, 369.
Tabergite, name of Werner's Talc of Taberg, xv, 436.
Tabular Spar, note on crystals of, xv, 449.
Talc, analyses, *T. Scheerer*, xiv, 37.
Tennantite in Pennsylvania, xx, 412.
Tetradymite, N. Carolina, *Genth*, xvi, 81; of Virginia, *F. A. Genth*, xix, 15; formula of, xix, 369.
Tetrahedrite, see *Gray Copper.*
Teza, see *Borocalcite.*
Thalite, *D. D. Owen*, xiii, 420; analyses, xiii, 420, xvi, 368, xvii, 131.
Thomsonite is Ozarkite, xvi, 50.
Thorite, supposed, of Danbury, Ct., xii, 220.
Thuringite, formula of, xviii, 129; and Owenite, identity of, xvii, 131, xviii, 376, 411.
Tin ore of Ireland, xi, 232.
Tin pyrites, analysis, etc., *Mallett*, xvii, 33.
Titanic Iron, from Miask, xiv, 275; with emery of Nicaria, xi, 65; in Canada, *Hunt*, xi, 231.
Topaz, relation to Andalusite and Staurotide in form, xviii, 44; formula of, *Deville* and *Fouqué*, xviii, 269; of Trumbull, Ct., form of, xviii, 419.
Tourmaline, constitution of, *Rammelsberg*, xi, 257; of Elba, xii, 393; of N. Hampshire, xii, 396; in N. York, *W. P. Blake*, xiv, 105; in Siberia, containing chrome, xiv, 273; *R. Hermann* on, xiv, 274, xv, 442; heteromerism of, *Naumann*, xv, 442; isodimorphism of, with Calcite, and figure of crystal of Tourmaline, xvii, 216; forms of, xviii, 419; on formula of, xviii, 254.
Tremolite, analysis of, *T. Scheerer*, xiv, 38; in New York, xii, 396.
Triphyline of Bodenmais, analysis, *Baer*, xi, 231; ibid, *Rammelsberg*, xv, 445, (called Triplite); of Norwich, Mass., analysis, *W. J. Craw*, xi, 99; ibid, *J. W. Mallet*, xviii, 33.
Trona from the Rocky Mountains, xv, 433.
Troostite of New Jersey, analysis, xii, 221.
Tscheffkinite, on formula of, xviii, 253.
Tungstates in N. Carolina, *F. A. Genth*, xix, 22.
Tyrite, description of, *D. Forbes*, xix, 369.
Unghwarite, *Kenngott*, xix, 358.
Unionite identical with oligoclase, *Smith* and *Brush*, xv, 211.
Uranium ores at Middletown, Conn., xii, 219.
Valentinite, see *Antimony, white.*
Vanadate of lead in Pennsylvania, *J. L. Smith*, xix, 127, xx, 246.
Vanadium, in the Perm iron, Russia, xiv, 275.

MINERALS—
Vanadium minerals of Lake Superior, *J. E. Teschemacher*, xi, 233.
Variolites of Drac, *Gueymard*, (reference,) xii, 391.
Variolite of La Durance, analysis, *Delesse*, xi, 227.
Warwickite, analysis, *T. S. Hunt*, xi, 352, xix, 369; a borotitanate, *J. L. Smith*, xvi, 293.
Wavellite in N. Carolina, *Genth*, xix, 23.
White Blende (Cleiophane,) of New Jersey, xii, 221.
White Lead ore, see *Cerusite*.
Williamsite and Serpentine, identical, *Hermann*, xiv, 267; ibid, *Smith* and *Brush*, xv, 212.
Wilsonite, description of, *T. S. Hunt*, xix, 428; identical with Scapolite, *Chapman*, xx, 269.
Wittichite, analyses of, *Schneider* and *Schenck*, xix, 370.
Wöhlerite, crystallization of, xviii, 46; formula of, xviii, 130.
Wolfram, analysis, *R. Schneider*, xix, 370; remark on, *Hermann*, xi, 230; in N. Carolina, *F. A. Genth*, xix, 22, 369.
Wollastonite, analysis of, *F. L. Winckler*, xi, 227.
Wulfenite, (Molybdate of Lead,) a furnace product, *Hausmann*, xiv, 423; in Pennsylvania, xiv, 105, xv, 446; of Zacatecas, analysis, *Bergemann*, xii, 221.
Xanthosiderite, description of, *E. E. Schmid*, xiv, 265.
Xenotime of Georgia, description of, *L. R. Gibbes*, xiii, 142; analysis of, *J. L. Smith*, xviii, 378, xix, 370; ibid, form of, xviii, 421; in N. Carolina, *C. U. Shepard*, xiii, 143; twin with Malacone, xx, 273.
Yttroilmenite, remark on, *R. Hermann*, xi, 229.
Zeolites of Scotland, *A. J. Scott*, xv, 439.
Zinc blende in Illinois, *G. J. Brush*, xiv, 112; (Marmatite,) Italian, *Meneghini*, xiv, 61; white, in New Jersey, analysis, xii, 221; in New York, xii, 395.
Zinc, oxyd of, crystalline, a furnace product, xiii, 417; isomorphous with corundum, *G. Rose*, xvii, 128; Italian, *Meneghini*, xiv, 62; in New Jersey, *W. P. Blake*, xiv, 105.
Zinc ores, origin of, *J. Delanoue*, (reference,) xii, 390.
Zigueline, Italian, *Meneghini*, xiv, 61.
Zircon, analysis, *T. S. Hunt*, xii, 214; crystal of, from N. Carolina, xviii, 417; in California, xiv, 274; near Reading, Pa, description of, *C. M. Wetherill*, xv, 443.

Mineralsystem of, *G. Rose*, noticed, xv, 430.
Mines of Sweden, yield in 1849, xvi, 142.
Mining Magazine, noticed, xvi, 302.
Mississippi River, *R. A. Marr*, on, xviii, 153.
infusoria of, *Ehrenberg*, xiv, 423.
inundations of, notice of, work on, by *C. Ellet, Jr.*, xvi, 120.
Mitchell, O. M., on a new method of recording N. P. distance or declination by electro-magnetism, xiii, 1.
Mitscherlich, action of bitter almond oil on human system, xi, 116.
foreign associate of the Academy of Sciences, Paris, xiv, 290.
Mohl, H. von, On the Vegetable Cell, noticed, xv, 453.
on cellulose as the basis of all vegetable membranes, xvi, 131.
on chlorophyll, xx, 278.
Moigno, light evolved at negative galvanic pole, xi, 252.
Moisture of the air, new mode of determining, xii, 419.
Molecular structure of organic bases, xii, 428.
Mollusca, geographical distribution of, *C. B. Adams*, xiv, 389.
of Irkutsk, xix, 137.
of North Britain and Mediterranean, depth of some species, xv, 205.
of the United States, *A. Binney* on, noticed, xii, 450, xiv, 127.
Adams's Contributions, noticed, xi, 302, xiv, 452.
Monge, on Statics, noticed, xi, 448.
Monticelli, minerals for sale, xii, 301.
Monument, National, strength of building material of, xi, 3.
Moon, influence of, on weather, *J. H. Alexander*, xii, 1.
note on a paper on surface of, by *J. Nasmyth*, xiii, 300.
Morfit, G., note on Aridium, xvii, 274.
gum Mezquite, xix, 263.
Moricand, death of, xviii, 429.
Morse's Telegraph, xi, 71.
Morse and *Bain's* Telegraph, xi, 288,
Mortality, annual, of various places, xiii, 299.
Morton, S. G., value of word species in Zoology, xi, 276.
obituary notice of, xii, 144.
memoir of, by *C. D. Meigs*, xiii, 153.
Mosambique, *Peters* on zoology, xvi, 285.
Motive power, compressed air used, xvi, 278.
by means of ether and chloroform, xvi, 408, 409.
See further *Caloric*.
Mounds in Alabama, *A. Bigelow*, xv, 186.
of New York, *E. G. Squier*, xi, 305.
Mountain chains in America, parallelism of, *Desor*, xii, 113.
Mountains, Himalaya, limit of perpetual snow of, xi, 244.
Alps, ibid, xix, 290.
physical geography of, xiv, 359.
former changes in, xii, 245.
Ararat, xiii, 269, xviii, 440.
Bolca xii, 201.
Müller, on Echinoderms, noticed, xiv, 293.
Murchison, R. I., on the Alps, xii, 245.
on Tuscany, xi, 199.
Address before the Geographical Society, noticed, xiv, 450.
Siluria noticed and reviewed, xviii, 301, 394, xix, 371.
Murexid, xviii, 123.
Muscle element, new, in the thoracic muscles of Insects, xvi, 262.
Muscular tissue, *W. I. Burnett*, xvii, 89.
Museums, uses of, *E. Forbes*, xviii, 340.
Mustard, oil of, artificial, xx, 266.
Myriston, xv, 120.

N.

Nachet's Microscopes, xi, 277; multiple, ibid, xix, 105.
Nacrite slates, *T. S. Hunt*, xix, 417.
Napoli, R., on arseniuretted hydrogen, and relations to Toxicology, xviii, 190.
Narcotin, new kinds, *Wertheim*, xiii, 260.
Nasmyth, on the moon, xiii, 300.
National Institute, Washington, Proceedings of, xx, 152.
Natural History Review, Dublin, xviii, 332.
Natural Philosophy, Elements of, by *W. H. C. Bartlett*, noticed, xiv, 452.
Nautical Almanac, Davis's, xiv, 317.
Naval Dry Docks of U. States, by *C. B. Stuart*, noticed, xiv, 149.
Nebulæ, memoir on, by Prof. *S. Alexander*, noticed, xv, 330.
Necrology, see *Obituary*.
Nees von Esenbeck, Eulogy and Herbarium of, xiv, 140.
Neisler, H. M., fructification of Arachis hypogæa, xix, 212.
Nemertes, *C. Girard* on, xi, 41.
Nereis Boreali-Americana of *W. H. Harvey*, noticed, xiv, 1, xvi, 422
Nerves, rate of transmission of impressions on, xvii, 424.
New Jersey Zinc works, xiii, 430.
Newport on the impregnation of the ovum in amphibia, noticed, xvi, 393.
New York, Indian mounds of, *E. G. Squier*, xi, 305.
topography of, *Guyot*, xiii, 272.
Journal of Pharmacy, noticed, xiii, 447.
New Zealand, birds of, xi, 102, 434.
coal in, xiv, 425.
Nickel, passivity of, *J. Nicklès*, xvi, 347.
separation of, from cobalt, xviii, 125.
in magnetic pyrites, *M. H. Boye*, xiii, 219.
on some ores of, *T. S. Hunt*, xix, 417.
Nicklès, J., new electro-magnet, xv, 104, 330.
circular electro-magnets, xvi, 110.
use of magnetic attraction in locomotion on railroads, xvi, 337.
passivity of nickel and cobalt, xvi, 347.
permeability of metals to mercury, xv, 107.
on the relations which exist between friction and pressure, xvii, 252.
obituary of Arago, xvii, 113.
on magnetisation, xx, 99.
correspondence of, xv, 109, 263, 413, xvi, 99, 268, 406, xvii, 113, 262, 412, xviii, 114, 331, 431, xix, 103, 407, xx, 102, 253, 402.
Niepce on heliochromics, xv, 272.
on copying engravings by the vapor of iodine, xvi, 113.
Nile, discoveries relating to, xi, 437.
Niobium and pelopium, identical, xvii, 245.
is columbium, xviii, 392.
Nitric acid known to Egyptians, xvi, 296.
Nitrites and nitrates, new test for, *G. C. Schæffer*, xii, 118.
Nitrogen, assimilation of, by plants, xix, 128, 409.
mode of preparing, *Mauméné*, xiii, 412.
on determining, *Bunce*, xi, 404.
Nitrogen, chloro-phosphuret of, xi, 256.
iodid of, *Gladstone*, xii, 432.
sulphid of, *Fordos* and *Gélis*, xiii, 114.
Nitronaphthalin and nitrobenzin, action of salts of iron on, xix, 114.
Nitroprussids xi, 113.
of soda, a test for Sulphur, *Bailey*, xi, 351, xii, 394,
Noctilucæ, phosphorescence of, xvi, 69.
North, E. D., on microscopes with large angles of aperture, xvii, 221.
on the binocular microscope, xviii, 61.
on the Fountain of blood, Honduras, xix, 237.
Norton, J. P., on a new sand-bath with water-bath, xii, 52.
obituary notice of, xiv, 448.
Norton, W. A., on Ericsson's Caloric Engine, xv, 393.
periodical variations of magnetic needle, xix, 183, xx, 26.
Norton's Literary Register, xv, 156.
N. Carolina, coal and red sandstone of, xix, 430.
North-polar distance, method of recording differences in, *O. M. Mitchell*, xiii, 1.
Notation, on the Arabic method of, *T. H. McLeod*, xix, 48.
Notornis, discovery of a living, xi, 102.
Nova Scotia, fossil reptile of, *C. Lyell*, xvi, 33.
fossil reptile, *J. Leidy*, xix, 444.
reptilian, in coal rocks of, xv, 279.
Nullipores, xi, 362.
Nutmegs, cultivation of, xii, 322.
Nyctaginaceæ, xv, 319.

O.

Oberhauser, cross of merit to, xiv, 290.
Obituary—Adams, C. B., xv, 292; Aikin, A., xx, 391; Arago, F., xvi, 447, xvii, 113; Audubon, J. J., xi, 295.
Beaupré, Beautems, xviii, 115; Beck, L. C., xvi, 149; Bernhardi, xiii, 45; Berzelius, J. J., xvi, 1, 173, 305, xvii, 103; Bischoff, G. W., xix, 129; Braconnot, xix, 415; Buch, L. von, xv, 464, xvii, 1; Burnett, W. I., xviii, 255.
Condamine, xx, 393; Crosse, Andrew, xx, 297.
Dalyell, J. G., xii, 302; Davis, F. W., xix, 448; Dekay, J. E., xiii, 300; De la Beche, xx, 145; Delessert, B., xiii, 48; Drake, D., xv, 150, 291; Duvernoy, xx, 105.
Ellery, J. G., xx, 296.
Fischer, of St. Petersburgh, xviii, 429; Forbes, E., xix, 150, 290, xx, 375; Franklin, John, xx, 386.
Gambel, W., xi, 143; Gaudichaud, xvii, 414; Gauss, xx, 104; Goldschmidt, C. W. B., xi, 443; Greenough, G. B., xx, 147.
Hall, J., xx, 393; Hisinger, W., xiv, 290; Hornschuch, xiii, 45.
Jacobi, C. G. J., xii, 148; Jameson, R., xviii, 156, xx, 337; Jenison, Wm., xvii, 444; Jussieu, A. de, xvi, 426, xvii, 414.
Koch, xiii, 45; König, xii, 446; Kunth, C. S., xiii, 43; Kunze, xiii, 45.
Lallemand, xviii, 431; Lassell, Edward, xiii, 301; Laurent, A., xvi, 103; Ledebour, xiii, 45; Link, H. F., xi, 446, xiii, 44.

Obituary—McGillivray, W., xv, 295; Mantell, G. A., xv, 147; Mauvais, Victor, xviii, 116; Melloni, Macedoine, xviii, 431, xix, 414, xx, 143; Meyer, C. A., xx, 135; Mirbel, B. de, xix, 103, 129; Molkenboer, xx, 135; Moricand, xviii, 429; Morton, S. G., xii, 144, xiii, 153.
Nicol, W., xii, 146; Norton, J. P., xiv, 448.
Œrsted, H. C., xii, 147; Oken, L., xii, 445; Olivier, Theodore, xvii, 264.
Petersen, A. C., xvii, 445; Pfaff, xv, 150; Presl, xvi, 427.
Remy, J., xix, 415; Richard, Ach., xvi, 427, xvii, 414; Rogers, J. B., xiv, 290; Roussin, A. R., xviii, 115; Roux, xviii, 114.
Saluzzo, A. de, xii, 446; Silvestre, Baron de, xii, 446; St. Hilaire, A. de, xvii, 414; Schauer, xiii, 45; Schumacher, H. C., xi, 295; Stanley, A. D., xv, 464; Stocks, (Botanist,) xix, 129; Strickland, H. E., xvi, 447; Sturgeon, Wm., xi, 444; Sturm, xiii, 45.
Taylor, R. C., xiii, 144; Teschemacher, J. E., xvii, 150, 292; Thomson, T., xviii, 441; Thompson, Wm., xiii, 443.
Wahlenberg, xiii, 45; Walckenaer, C. A. de, xiv, 449; Waldheim, Fischer de, xx, 394; Walker, S. C., xv, 293; Wallich, xviii, 133; Walpers, G. G., xvi, 427; Weaver, T., xx, 297; Webb, P. Barker, xviii, 429; Winterbottom, xix, 129; Wulfsberg, Nilo, xiv, 290.
Observatory of Altona, *D. Petersen* appointed to, xi, 442.
on an astronomical, *J. Campbell*, xvi, 62.
of Cambridge, Mass., xii, 295.
of Paris, xviii, 117, 293.
of Toronto, Canada, xv, 287.
Ocean, level of, affected by atmospheric pressure, *Ross*, xix, 52.
temperature of, *J. D. Dana*, xvi, 153, 314.
effect on the continents of a supposed change of, *J. D. Dana*, xvi, 331.
North Atlantic, temperature and currents of, *Scoresby*, xvi, 438.
Oceanic currents, xvi, 318, 438.
Œrsted, H. C., obituary notice of, xii, 147.
Oil of cinnamon, artificial, xviii, 414.
Olmsted, A. F., on whirlwinds, xi, 181.
Olmsted, D., auroras of Sept., 1851, xii, 442.
on the zodiacal light, xii, 309.
aurora of Feb. 19, 1852, xiii, 426.
eclipse of 1854, xviii, 142.
coal and red sandstone of N. Carolina, xix, 430.
Oloba, *Uricoechea* on, xix, 243.
Opium, alkaloids in, xv, 428.
Optical characters of Clinochlore, xii, 339.
of Micas, xii, 6, xiv, 268, xix, 364.
investigations connected with the eclipse of the sun, xiii, 440.
purposes, preparation of large crystals of iodo-quinine for, xvii, 423.
Optics, accidental colors from looking at white objects, *Seguin*, xiii, 441.
glass for objectives, xix, 105.
Oregon, Washington Territory of, xv, 462.
Organic acids, decomposition, xvi, 116.
bases, molecular structure, xii, 428.
new class of, *Wurtz*, xx, 409.
Organic bases, new, containing metals, *Frankland*, xx, 410.
containing palladium, xvi, 410.
containing tin, xiv, 421, xvi, 116.
containing metals, new, xvi, 118.
radicals, theory of, xi, 256.
structure, *E. B. Hunt*, xiii, 53.
Orr's Circle of the Sciences, part on Crystallography, noticed, xix, 150.
Overman's Practical Mineralogy, noticed, xii, 150.
Owen, D. D., description of two new minerals and a new earth, xiii, 420
Geological Report on Wisconsin, Iowa and Minnesota, xv, 296, xvi, 86.
Owen, R., on the Dinornis, noticed, xii, 452.
on the megatherium, xiv, 91.
on fossil serpents and the serpent of the Bible, xi, 281.
on the principal forms of the Skeleton and the Teeth, noticed, xviii, 448.
Oxygen, magnetism of, *Plücker*, xii, 427.
magnetic force of, xx, 108.
use of, in asphyxia, xviii, 122.
Ozone, note on, xvi, 119, xx, 108.
Schönbein's, *Faraday*, xiii, 261.
the odor from attrition of siliceous stones not due to, *R. Hare*, xii, 434.

P.

Pacific, changes of level in, *J. D. Dana*, xv, 157.
Page, C. G., strength of building stones, xi, 3.
time required to raise the galvanic current to its maximum, and its importance in electro-mechanics, xi, 86.
colored figures with polarized light, xi, 89.
sparks of secondary currents, xi, 191.
galvanic currents in liquids, conduction and distribution of, xi, 192.
on magnetic telegraphs, xi, 287.
on atmospheric churns, xi, 296.
on gutta percha for insulation, xi, 299.
electro-magnetic locomotive, xi, 450, xii, 139.
the economical constant battery, xiii, 257.
Paine, R. T., Solar eclipse, 1851, xii, 134.
Paget, J., Lectures, noticed, xvi, 428.
Palæontographical Society, xii, 444, xv, 154.
Palæontology of New York, by *J. Hall*, noticed, xv, 466, xvi, 127.
Palæozoic corals, *Edwards* on, noticed, xii, 449.
Fossils, by *M'Coy*, noticed, xiv, 291.
rocks, British, *Sedgwick* and *M'Coy's* work on, noticed, xii, 449.
Palladium, new bases containing, xvi, 410.
Panama hats, xix, 439.
Paper, note on manufacture of, xv, 268.
safety, xiii, 139.
Parallax of a star, xv, 457.
Paramagnetic substances, law of induction in, *Plücker*, xvii, 423.
Paris Observatory, xviii, 117, 293.
Universal Exposition, xx, 110, 402.
Parkinson's Organic Remains, noticed, xi, 298.
Parthenope, new planet, xi, 129.
Pasteur, on a case of dimorphism, xviii, 433.
on a case of isomerism, xv, 109.

Patent Office Report for 1850, noticed, xi, 295.
Paterson, J., on the Calculus of Operations, xi, 327
Payen parasites in sugar, xiii, 143.
Payer, Traité d'Organogénie, etc., noticed, xix, 129.
Peat and its products, *Brande*, xi, 440.
gas from, xx, 261.
Peclet's Physics, noticed, xx, 264.
Peirce, B., on Saturn's rings, xii, 109.
Pelopium and niobium identical, xvii, 425.
Pendulum experiment, xii, 112.
ibid, *J. D. Dana*, xii, 200.
ibid, *C. S. Lyman*, xii, 251, 398.
ibid, *D. P. Woodbury*, xiii, 212.
ibid, note on Marquis de Poleni, *Secchi*, xiv, 237.
ibid, at Rome, *Secchi*, xiv, 287.
ibid, with gyroscope, *Foucault*, xix, 280.
ibid, demonstration, *J. L. Dagg*, xix, 280.
ibid, *J. G. Barnard*, xx, 238.
Pennsylvania, geological survey, xi, 442.
Pensions, scientific, in England, xiv, 433.
People's Journal, noticed, xvii, 151.
Perforating animals, xix, 136.
Perfumery, substances used in, xiii, 413.
Perley, boulders transported by ice, xi, 425.
Perrey, A, Report on researches on Earthquakes by, xix, 55.
works by, noticed, xix, 452.
titles of Memoirs of, xv, 155.
Person, latent heat of ice, xi, 251.
Personal equation in observations, xvii, 422.
Peter, R., on Blue Lick Spring, xi, 284.
Petermann, A., on Australia, xvi, 442.
Peters, W. C. H, on Mosambique, xvi, 285.
Petersen, appointed to Altona observatory, xi, 442.
comet of May, 1850, xi, 130.
first comet of 1852, xiv, 130.
obituary, xvii, 445.
Philosophical Society, see *American*.
Pholades, perforation of rocks by, xiii, 287.
Phosphatic nodules in Silurian rocks, *T. S. Hunt*, xv, 129.
Phosphorescence of the sea, *A. de Quatrefages*, xv, 193, xvi, 69.
Phosphoric acid in human economy, *D. Breed*, xv, 275.
in urine, xiii, 224.
on determination of, by molybdate of ammonia, *W. J. Craw*, xiii, 393.
separation of, *Reynoso*, xiii, 114
volatility of, in acid solutions, xi, 403.
Phosphorus, equivalent of, *Schrötter*, xiii, 260.
allotropic condition of, xi, 255.
and iodine, compounds of, xi, 108, 253.
action of iodid, on glycerine, xix, 270.
Photogenic glasses, albuminizing, xi, 279.
Photographic pictures, positive, xv, 119.
pictures, vitrification of, xvii, 120.
portraits on linen cloth, xvii, 120.
Photographs, on painting, xviii, 437.
microscopic, xiv, 238.
Photography, xvi, 273, 407, xviii, 122, 390, xix, 413, xx, 111.
forms produced in, by lenses and mirrors of different sizes, xv, 121.
on application of, to representing microscopical objects, xvi, 142.
Photography, discovery in, xvii, 290.
applied to Zoological studies, etc., xvii, 270.
ibid, to astronomy, xx, 143.
ibid, to finding height of clouds, xx, 296.
gutta percha in, xiii, 300.
collodion for, xviii, 390.
new kind of collodion, xviii, 437.
engraving from, xviii, 390.
Photometry, industrial, xvii, 417.
Phycite, *M. Lamy*, xvi, 114.
Physical instruments at great exhibition in London, xii, 440.
Physics, researches in terrestrial, *Henessey*, xiii, 271, xv, 126.
Pickering, J., thoughts of telegraphic communication twenty years ago, xiii, 431.
Pictorial Atlas, of fossil remains, by *G. A. Mantell*, noticed, xi, 298.
Pine apple, xix, 440.
Piperine, alcaloid from, xiv, 100.
Piria, action of sulphate of ammonia, xi, 111.
researches on populine, xiii, 412.
Pisa, science of, xii, 300.
Pisciculture, xvi, 104, 270, 410, xv, 425, xvi, 104, xx, 104.
method of ascertaining the maturity of eggs, xix, 412.
Fry on, noticed, xix, 452.
Planariæ, *C. Girard* on, xi, 41.
related to intestinal worms, *L. Agassiz*, xiii, 425.
Planets, on analogies among, *D. Kirkwood*, xi, 394, xiv, 210.
ibid, *E. Loomis*, xi, 217.
ibid, *J. B. Cherriman*, xiv, 9.
on the small, *Le Verrier*, xviii, 80.
symbolical notation of the Asteroidal, xiii, 287.
(new) Amphitrite (29), xviii, 137, 290, xix, 446; Bellona (28), xviii, 137, 290; Calliope (22), xv, 283; Circe, xx, 137; Clio, (12), xi, 129; Egeria, (13), xi, 129, 276; Eunomia (15), xiii, 127; Euphrosyne (31), xviii, 430, xix, 272; Euterpe (27), xvii, 286; Fortuna (19), xiv, 430, xv, 283, 457; Irene (14), xii, 283; Leucothea, xx, 137; Lutetia, (21), xv, 283; Massalia (20), xv, 135, 283; Melpomene (18), xiv, 283, 430; Parthenope (11), xi, 129; Phocæa (25), xvi, 136, 289; Polymnia (33), xix, 137, 446; Pomona (32), xix, 137; Proserpine (26), xvi, 137, 289, 430; Psyche (16), xiv, 129; Thalia (23), xv, 284, 457; Themis (24), xvi, 136, 289; Thetis (17), xiv, 130; Urania (30), xviii, 430, xix, 137; Victoria, xi, 129.
supposed new, discovered on the 8th of December, by *Gasparis*, xiii, 287.
ibid, of *Gasparis*, denied, xiii, 426.
Saturn, rings of, *G. P. Bond*, xii, 97.
W. C. Bond, xii, 133.
B. Peirce, xii, 106.
D. Kirkwood, xii, 109.
Uranus, on satellites of, *E. Loomis*, xiv, 405.
perturbations of, xiii, 300.
Plantæ Junghuhnianæ, noticed, xviii, 428.
Plants, assimilation of nitrogen by, xix, 128, 409.
coloring materials of flowers of, xviii, 431.

Plants, on the vegetable cell in, *von Mohl*, xv, 145.
diseases of, xviii, 433.
freezing of *J. LeConte*, xiii, 84, 195.
ibid, *A. DeCandolle*, xiv, 445.
influence of light, heat, &c., on chemical changes in, xi, 286
influence of light on, *Gladstone*, xix, 130.
on growth of, in glazed cases, xvi, 132.
and animal life, on preserving the balance between in seawater, *R. Warrington*, xvi, 444.
and animals, limit between, *E. Lankester*, xix, 282.
fossil, in amber, xviii, 287.
of tertiary in Silesia, xiv, 281.
Catalogue of U. S. medicinal, by *A. Clapp*, noticed, xv, 466.
See further, *Botany*.
Platinum. note on discovery of, xviii, 447.
on crystallizing from fusion, xx, 340.
in California, xx, 79.
Playfair, L. on the nitro-prussids, xi, 113.
lecture on the Great Exhibition, xiv, 19.
Pleochroism, artificially produced, *Senarmont*, xvii, 414, 421.
Plücker. on the magnetic relations of gases, xiii, 110.
magnetism of oxygen, xii, 427.
on magnetic and paramagnetic substances, xvii, 423.
Plumagery, on Chinese and Aztec, *D. J. Macgowan*, xviii, 57, 156.
Pœppig, appointed to chair of Prof. Kunze, xiii, 45.
Poisons, use of bromine in examining for, xi, 405.
Polar basin, *Scoresby* on, xvi, 446.
Polarization of the atmosphere, xix, 105.
of chlorite, *W. P. Blake*, xiii, 116.
of clinochlore, *W. P. Blake*. xii, 339.
colored figures of objects with, xi, 89.
of light, xv, 175.
of light by refraction through a metal, xvii, 121.
of light, connection of chemical forces with, *N. S. Maskelyne*, xii, 64.
plane of, rotated by galvanism, *Wiedemann*, xii, 111.
Polychroism, artificially produced, xvii, 414, 421.
Polytechnic College, Philad., xvi, 298.
Polythalamia, xi, 86, 114, xii, 132, xvii, 176.
Popocatepetl, ascent of, xi, 266.
Populine, researches on, *Piria*, xiii, 412.
Potash, on making bi-chromate, xvii, 269.
preparation of caustic, xvii, 123.
Potassium, cyanid of, *Rieken*, xiii, 260.
Potter, aërometric balance, xi, 114.
Pottsville Scientific Association, xx, 296.
Pourtales on the Foraminiferæ, xi, 121.
Powder, manufacture of, xviii, 436.
charcoal for, xvi, 271.
Precipitate, white, *Wagner*, xiii, 113.
Preparations in zoology, on making, *H. Goadby*, xii, 15, 227.
Prescott, W., fishes of the Winnipisseogee, xi, 340.
Preservation of animal substances, *H. Goadby*, xii, 378.
Price, A. P., sulphid of calcium for destroying Oidium, xvi, 441.
Principles of Zoology by *Agassiz* and *Gould*, noticed, xi, 447.
Printing Ferns, &c., on engraving plates for, xi, 280, 441.
Prichard's Natural History of Man, noticed, xx, 131.
Pritchard's History of Animalcules, noticed, by *J. W. Bailey*, xv. 299.
Pritzel's Thesaurus Lit. Bot., noticed, xiii, 424.
Iconum, etc., noticed, xx, 131.
Prize, from the Berlin Academy, xii, 445.
Prizes of Acad. Sci. at Paris, xiv, 289, xvii, 412, 417.
proposed by the Société d'Encouragement, xvi, 410.
Problem by *Bapu Deva Shastri*, xi, 194.
Propion, *Morley* on, xii, 432.
Propionyl series, xx, 266
Propylamine in plants, xiii, 114.
Proteus anguinus, *J. C. Dalton*, xv, 387.
Prout, H. A., new graptolite, xi, 187.
Psorospermia, *W. I. Burnett*, xviii, 104.
Purification of coal gas, xi, 291.
Purpurin, xi, 111,
Pyro-electric currents, *Becquerel*, xviii, 384.
Pyroxyline, reproduction of cotton from, xvi, 406.

Q.

Quader-formation in Germany, xiv, 424.
Quarterly Journal of Microscopic Science, noticed, xv, 155.
Quartz lens of Nineveh, xv, 122.
Quatrefages, A. de, on phosphorescence, xv, 193, xvi, 69.
on pisciculture, xvi, 270.
Souvenirs d'un Naturaliste, noticed, xviii, 448
Quekett, J., Lectures on Histology by, noticed, xiv, 151. xviii, 157.
on the Microscope, noticed, xiv, 65, xx, 302.
Quet on Electric light, xvi, 99.
Quetelet, shooting stars of August, 1850, xi, 293.
Quicksilver mine, see *Cinnabar*.
Quinidine, xv, 269. xvi, 101.
Quinine, composition of, xviii, 413.
Quinquinas, new, examination of, xvii, 271.
alkaloids of, xvi, 414.

R.

Radicals, organic, see *Organic*.
Railroad to Pacific, notice of Reports on, explorations for, xx, 297.
Railroads, on magnetic attraction for aiding on heavy grades in, *J. Nicklès*, xvi, 337.
Rain, rapidity of fall of, xiii, 298.
in the Khassya Hills, xiv, 447.
of Temperate Zone, *Dove*, xx, 399.
Rainbow by light reflected from water, *E. S. Snell*, xviii, 18.
tertiary, *C. Hartwell*, xvii, 56.
Raindrops on clay, *Hitchcock*, xix, 395.
Rainwater, ammonia in, xvi, 407, xvii, 265.
Rainey's Abacus, noticed, xi, 448.

Rammelsberg, C., on Petalite, Spodumene, Humite, etc., xv, 277, 279.
Pyroxene and Hornblende, xii, 388.
Randall, report in favor of a geological survey of California, noticed, xii, 452.
Rankine, W. J. M., mechanical action of heat, xviii, 64.
on the absolute zero of the perfect gas therm ometer, xvii, 274.
on the air-engine, xix, 137.
expansion by cold, xx, 113.
Rath v., alteration of scapolite, xviii, 372.
Ravenel, H. W., on Fungi, noticed, xiv 114, xvi, 129, xvii, 285, xx, 284.
Ray Society, publications of, xiii, 303.
Records of School of Mines and of Sciences, noticed, xiv, 148.
Red River region, Geology, &c., of, from Report of *R. B. Marcy*, xix, 433.
Sea and Mediterranean, relative level of, xi, 142.
Redfield, W. C., Hurricane of Sept. 1853, and notices of other storms, xviii, 1, 176.
Reefs, see *Coral*.
Refraction, astronomical, *Faye*, xix, 104.
double, temporarily produced, *Wertheim*, xviii, 124.
double in tesseral crystals, by pressure, xv, 111.
Regents of the University of New York, Report by, noticed, xiv, 293, xv, 303, xviii, 449, xix, 452.
Regnault, elastic forces of vapors and gases, &c., xix, 264.
Reich, mean density of earth, xiv, 98.
Reichenbach de Pollinis Orchidearum, xix, 443.
Remy, J., death of, xix, 415.
Renal organs, *Burnett* on, xvii, 374.
Rennie, strength of building stones, xi, 8.
Reports of the Secretary of War, by Lt. *J. E. Johnston* and others, on routes from San Antonio to El Paso, noticed, xii, 302.
Reptile fossil of Nova Scotia, xv, 279, xvi, 33, 283.
ibid, *J. Leidy*, xix, 444.
of Connecticut R. Sandstone, *Wyman*, xx, 395.
lower Silurian in Canada, xii, 120.
remains and fossil ova in Old Red Sandstone, England, xiii, 278.
of Stansbury's Report, noticed, xv, 134.
work on American, by *Baird* and *Girard*, noticed, xv, 465.
of N. Y., *Baird* on, xix, 453.
foot-tracks, supposed, of Silurian rocks of Canada, admitted to be Crustacean, xiv, 454.
Reynoso, determination of phosphorus in analysis, xiii, 114.
Rice, H., effect of lightning, xii, 239.
meteorological observations at Attleboro', Mass., for 1851, xiv, 139.
Richard's Dictionaire raisonné d'Agriculture, &c., noticed, xix, 414.
Riddell, J. L., binocular microscope, xv, 68, 143.
illuminating opake objects, xv, 69.
achromatic condenser, xv, 69.
Riddell, W. P., on Soleil's saccharimeter, xv, 175.
Reiss's Reibungselektricität, xvii, 273.
Rigg's Dacota Grammar, xix, 450.
Rive, A. de la, on the Aurora, xviii, 353.
Electricity noticed, xvii, 420.
Life of DeCandolle, noticed, xiii, 150.
Rivers, descent, etc., of Ohio, Mississippi, etc., xvi, 123, 124.
on Mississippi, xviii, 158.
ibid, inundations of, xvi, 120.
ibid, infusoria of, xiv, 428.
of China, *Eagre* on, xx, 305.
Rivot, use of hydrogen in analysis, xi, 253.
Rochas, on a means of preserving limestone or marble monuments, xiii, 298.
Rocks, action of alkalies on, xvii, 440.
foliation of metamorphic, *E. Forbes*, xix, 122.
coral reefs, xi, 363, xii, 31.
of Spain, xi, 259.
Rocky Mountains, geology and palæontology of, *J. Hall*, xv, 126.
ice springs in, xv, 146.
Rœmer on the Chalk of Texas, noticed, xvii, 150.
Rogers, H. D., probable depth of the ocean of the European Chalk Deposits, xvii, 131.
Report on the salt and gypsum of Virginia, noticed, xviii, 273.
Rogers, W. B., on binocular vision, xx, 86, 204, 318.
on age of New Red Sandstone, xix, 123.
Rogers, W. B., and *R. E.*, use of hydrogen and carbonic acid in analysis, xviii, 213.
Röhrs, J. H., on oscillation of suspension bridges, xiv, 447.
Rondelet, on building stones, xi, 10.
Rood, O. N., fixed lines of Solar Spectrum seen with flint glass prisms, xvii, 429.
on the Paramecium aurelia, xv, 70.
method of showing diffraction with the microscope, xv, 327.
Root, O., on a locality of carbonate of strontia, xiii, 264.
meteoric iron of Seneca River, xiv, 439.
Rose, G., on origin of serpentine, xii, 215.
crystalline form of the rhombohedral metals, xii, 279.
meteorite of Schwetz, xiii, 142.
on dimorphism of zinc, xiv, 424.
Rose, H., artificial formation of Malachite, xiv, 424.
biography of Berzelius, xvi, 1, 173, 305, xvii, 103.
Analytical Chemistry, noticed, xii, 303.
Rosse, mode of making speculums, xii 416.
telescopes, revelations of, xvii, 53.
Royle, on the arts and manufactures of India, xiv, 160.
Rozet, on rapidity of fall of rain, xiii, 298.
on temperature of earth and air near it, xiii, 442.
Ruhmkorff's apparatus for transforming dynamical into statical electricity, xv, 114.
Ruspini, preservation from oxydation of proto-sulphate of iron, xi, 115.
Russia, climate of Nischne Tagilsk, xiii, 143.
cold of Yakutsk in, xiii, 201.
Russian meteorological observations, noticed, xiv, 292.
Ryland, A., assay of gold and silver by, noticed, xiv, 150.

S.

Sabine, E., on variations of Temperature in Canada, xvii, 143.
on the Kew magnetographs, xii, 271.
on terrestrial magnetism, xiv, 434, xix, 424.
address in 1852 before British Association, xiv, 431.
Saccharimeter, Soleil's, *W. P. Riddell* on, xv, 175.
Sænann's establishment at Paris for the sale of minerals, xvii, 150.
Safford, J. M., geology of Middle Tennessee, xii, 352.
tooth of Getalodus, xvi, 142.
St. John, S., Elements of Geology by, noticed, xii, 451.
Salad for the Solitary, noticed, xvii, 132.
Sal-ammoniac, method of removing in analysis, xv, 94.
from the residues of gas works, xvii, 119.
Salt, reaction of, in formation of minerals, xix, 429.
in California, xx, 83.
Salt Lake region, Stanbury's survey of, noticed, xiv, 291.
of Oroomiah, analysis, xx, 253.
Salvetat, hydrosilicates of alumina, xii, 218.
Sand-bath, new, with water-bath, xii, 52.
Sandstone of Conn. River valley, age of, *W. B. Rogers*, xix, 123.
fossils in, xx, 22, 395.
reptile remains and fossil ova in old red, xiii, 278.
San Salvador, earthquake, xviii, 277.
Sarsaparilla, plants affording, xix, 441.
Sartwell, H. P., Carices, noticed, xv, 129.
Satellites of Uranus, *E. Loomis* on, xiv, 405.
Saturn, ring of, *W. C. Bond*, xii, 133.
rings of, *G. P. Bond*, xii, 97.
B. Peirce, xii, 106.
D. Kirkwood, xii, 109.
Saurian, see *Reptile*.
Scacchi, A., on Dimorphin, xv, 431.
on Humite, xiv, 175.
Schacht, H, on the Microscope, xvii, 295.
Schæffer, G. C., new test for nitrites and nitrates, xii, 117.
Scheerer T., on polymerous isomorphism, xiv, 37.
Schiel, J., separation of manganese from iron and nickel, xv, 275.
on Sanguinarine, xx, 220.
method of determining nitrogen, xx, 20.
Schlagintweit, on the Alps, xiv, 359.
observations on atmospheric pressure, xix, 145.
Schleiden's Poetry of the Vegetable World, American Edit., noticed xx, 129.
Schmidt's process for determining nitrogen, *J. B. Bunce* on, xi, 404.
Schneider, determination of arsenic in organic substances, xiv, 260.
Schödler's Book of Nature, noticed, xvi, 450.
Schoolcraft, H. R., coal near Lake of the Woods, xix, 232.
Schumacher, H. C., obituary of, xi, 295.
Schwabe, H., spots on the Sun, xiv, 444.
Scoresby, W., revelations of Rosse's Telescope, xvii, 58.
Temperature and currents of North Atlantic, xvi, 438.
theory of an arctic basin, xvi, 446.
Magnetical Investigations, noticed, xvi, 418.
Sea, on the phosphorescence of, *A. de Quatrefages*, xv, 193, xvi, 69.
Sea-level, changes in, *A. Tylor*, xviii, 21, 216.
Sea shores, degradation on, *J. D. Dana*, xii, 334.
Seawater for the aquarium, xviii, 133, 293, xix, 146.
on preserving balance of animals and plants in, *Warrington*, xviii, 133.
carbonic acid in, xvi, 362.
sulphate of lime in, xiv, 417.
effect of, on seeds, xx, 282.
Seaweeds, work on, by *W. H. Harvey*, noticed, xiv, 1, xvi, 422.
Seal, T. F., Hydrargillite of Pennsylvania, xi, 267.
Seeds of Magnolia, xx, 279.
effect of seawater on, xx, 282.
Secchi, heat of solar disk, xiv, 286.
Sedgwick, A., Discourse by, noticed, xi, 144.
work by, on British palæozoic rocks, referred to, xii, 448.
Seeman's Botany of the Herald, xv, 133, xviii, 132, 429, xix, 439.
Seguin, D. M., on the accidental colors from looking at white objects, xiii, 441.
Selenio-cyanogen, *Crooker*, xii, 432.
Selenium, density of, xvii, 123.
Senarmont, on Micas, xiv, 268.
artificial production of pleochroism, xvii, 414, 421.
optical properties of isomorphous substances, xiii, 409.
Serpent of the Bible and fossil serpents, *Owen* on, xi, 281.
Symbol, work on, by *E. G. Squier*, noticed, xii, 453.
Serpents of New York, *S. F. Baird* on, referred to, xviii, 449.
Sestini, B., on Analytical Geometry, noticed, xiv, 453.
Sheathing of ships, bronze for, xvi, 407, xvii, 419.
Shells, catalogue of the collection of *Dr. J. C. Jay*, noticed, xii, 447.
of New England, work on, by *W. Stimpson*, noticed, xiii, 150.
of Panama, work on, by *C. B. Adams*, noticed, xiv, 452.
See further, *Mollusca*.
Shepard, C. U., new minerals and localities, xii, 209, 219, 222.
on meteorites, xi, 36.
meteoric iron of S. Africa and presence of potassium, xv, 1.
ibid, of Cayuga Co , N. Y., xv, 363,
on meteoric iron of Sonora, xviii, 369.
Xenotime of North Carolina, xiii, 143.
Dimagnetite and Jenkinsite, xiii, 392.
Nickeliferous Pyrites of Gouverneur, and Triplite of Mass., xv, 444, 445.
crystal of gold from California, xv, 448.
Treatise on Mineralogy by, noticed, xiv, 454.

Shepherd, F., geysers of California, xii, 153.
Shooting stars, Aug., 1848 and 1849, xi, 133.
of August, 1850, xi, 130, 293.
observed for, in Nov., and Dec., 1850, xi, 131.
seen in full daylight June, 1850, xi, 131.
brilliant one, Sept. 1850, xi, 131.
of Aug, 9, 10, 1852, *E. C. Herrick*, xiv, 430.
in Aug., 1852, at Paris, *C. Gravier*, xiv, 431.
of August, 1852, xv, 136.
of August, 1853, xvi, 288, 431.
observed at Toulouse, xv, 290.
of August, 1855, xx, 285.
Siberian Exploring Expedition, of 1853–5, xiv, 447.
Siebold and Stannius, Comparative Anatomy, of, translated by *W. I. Burnett*, noticed, xvii, 285.
Light, on our sense of the vertical and horizontal, *E. B. Hunt*, xx, 368.
Silbermann, measure of dilatation and contraction, xv, 413, xviii, 388.
Silica and alumina, isomorphism of, *T. S. Hunt*, xiii, 370, 371.
Silicates, classification of, *Chapman*, xiv, 267.
Silicification, artificial, xvii, 119.
Silicium, xx, 109.
Silk in Algeria, xix, 108.
on coloring, through food of silk worms, xv, 269.
gilding of, xvii, 418.
Silkworm, new, introduced into France, xix, 108, 411, xx, 288.
Silliman, B., absent in Europe, xi, 443.
Silliman, Jr., B., on Gibbsite, xi, 121.
Mammoth Cave, xi, 332.
daguerreotypes by galvanic light, xi, 417.
condition of Vesuvius, xii, 256.
Grotto del Cane and Lake d'Agnano, xii, 257.
sulphur lake near Tivoli, xii, 258.
meteorological observatory of Vesuvius, xii, 259.
Gillard's light, xii, 260.
notes from correspondence of, xii, 301.
an excursion on Etna, xiii, 178.
zinc oxyd as a pigment, and notice of New Jersey works, xiii, 430.
Principles of Chemistry by, noticed, xv, 150.
Copper Mines of Bristol, Ct., xx, 361.
Siluria, introductory chapter of Murchison's, xviii, 394.
review of, *J. D. Whitney*, xix, 371.
Silurian System of Bohemia, *Barrande*, xiii, 117.
of the Lake Superior Region, xvii, 181.
Silver used by American Indians, xi, 322.
fulminating power of sponge of, xx, 260.
Sinsteden, on magneto-electric currents, xviii, 264.
Sirocco dust-showers, xi, 374.
Slide on Mt. Lafayette, *E. Hitchcock*, xiv, 73.
Smallwood, C., Contributions to Meteorology, xvi, 77, xvii, 287, xx, 139.
Smee, A., on Electro-metallurgy, noticed, xiii, 448.
Smith, J. L., comparison of microscopes, xi, 277.
Emery, xi, 53.
remark on Liebigite, xi, 257.
thermal waters of Asia Minor, xii, 10, 366.
on Inverted Microscope, xiv, 233.
micrometer for measuring angles with microscope, xiv, 240.
on removing sal-ammoniac in analysis, xv, 94.
determining alkalies in minerals, xv, 234, xvi, 53.
analysis of magnesia opal, xv, 435.
and *G. J. Brush*, reëxamination of American minerals, xv, 207, xvi, 41, 365.
examination of American minerals, xviii, 372, xx, 242.
on Thalia, xvi, 95.
Warwickite a boro-titanate, xvi, 293.
on certain actions of nitric and oxalic acids, xvi, 373.
on a new meteorite from Tennessee, xvii, 131.
identity of Owenite and Thuringite, xvii, 131.
on meteorites, xix, 153, 322.
arsenate and vanadate of lead in Pa., xix, 127.
Smith, S., Elements of Geometry, xi, 147.
Smith and *Watson*, American historical literary curiosities by, noticed, xii, 452.
Smithsonian Institution, Contributions to Knowledge, noticed, xi, 303, 447, xviii, 445.
Reports, noticed, xii, 303, xiii, 301.
registry of periodical phenomena, proposed by, xii, 293.
meteorological instruments made by, xiii, 288.
letter of *L. Agassiz* on, xix, 284.
article on, xx, 287.
Snell, E. S., on a rainbow by light reflected from water, xviii, 18.
Snow, red, in Switzerland, *Ehrenberg*, xiii, 442.
limit of perpetual, of Himalaya, xi, 244.
ibid, of Alps, xix, 290.
Snow-line, height of, in different regions, xv, 249.
Snow-water, analysis of, xiv, 263.
Soap, observations on, xiv, 31.
Societies, see *American Philosophical of Philadelphia; Boston, of Natural History; Cavendish; Cornwall Polytechnic; Geological, of France; Geological, of London; Palæontological; Ray; Zoological, for the Acclimation of Animals.*
Sodium, manufacture of, xx, 258.
Soils, composition of matters extracted from fertile, by water, xvi, 273.
of Scioto Valley, *D. A. Wells*, xiv, 11.
Solar eclipse, see *Sun.*
Soleil's saccharimeter, xv, 175.
Sollit, specula for telescopes, xvi, 437.
Solution, thoughts on, *T. S. Hunt*, xix, 100.
Somerville's Physical Geography, xvi, 301.
Sound, velocities of, in different substances, xv, 218.
relations of architecture to, xv, 215.

Soundings, instruments for taking, *F. M. Lyte*, xvii, 149.
in the Atlantic, microscopic examination of, *J. W Bailey*, xii, 132, xvii, 176.
South Carolina, work on Fosssils of, noticed, xix, 451, xx, 128, 301.
Spain, work on Geology of, by *Verneuil* and *Collomb*, xvi, 124
Species in Botany on affinities, limits, origin, etc., of, xvii, 241.
Specific volume of fluid compounds, *Kopp*, xix, 418.
Spectrum, fixed lines of, shown with common glass prisms, *Rood*, xvii, 429.
Speculums for telescopes, *Rosse*, xii, 416.
Spencer's microscopes, xi, 277.
new object-glass, *A. S. Johnson*, xiii, 31.
improvements in microscopic object-glasses, xiii, 290.
Spermatology, relations to doctrine of vital force, *W. I. Burnett*, xiii, 281.
Spermatozoa, observations on, xvi, 393.
Spheroidal state, *Boutigny*, xii, 420.
engine employing water in, xv, 420.
Spirit-rappings, xviii, 382.
Spleen, relation of blood-corpuscle-holding cells to, *W. I. Burnett*, xvi, 375.
Spongy metals, xx, 103, 109.
Spooner, *E. A.*, analysis of tea, xi, 249.
Spores of Cryptogamia, xv, 25.
Spots on the Sun seen by H. Schwabe, *A. Gautier*, xiv, 444.
Springs in the Alps and their temperatures, xiv, 373.
Squier, *E. G.*, Indian mounds of New York, xi, 305.
the Serpent Symbol by, noticed, xii, 453.
Stalactites, on organic matter in, *D. A. Wells*, xiii, 11.
Stanley, A. D., obituary of, xv, 464.
Stansbury's Expedition to the Great Salt Lake, noticed, xiv, 291, xv, 133.
Star, parallax of, xv, 157.
Stauroscope, *F. v. Kobell*, xix, 425.
adapted to microscope, xx, 415.
Steam, on extinguishing fires by, xv, 267.
Steam-boiler explosions, notice of Guthrie's memorial on, xiv, 146.
Steam navigation, history of, by *A. McFarlane*, noticed, xii, 450.
Stereoscopes, notice of, xv, 140, 288.
chromatic, xv, 289.
Mascher's, xix, 289, 447.
on a method of taking Daguerreotypes for, xvi, 348.
Stereoscopic vision, *W. B. Rogers*, xx, 86, 204, 318.
Stereoscopy, xviii, 122, 437.
Steudel's Synopsis Plant. Glum., noticed, xvii, 443, xviii, 428.
Stibmethyl, *Landolt*, xii, 430.
Stibmethylium, and its compounds, xv, 117.
Stigmaria, *J. E. Teschemacher*, xiii, 265.
Stimpson, *W.*, work by, on shells of New England, noticed, xiii, 150.
Stöckhardt's Chemical Field Lectures, xv, 301.
Stoddard, *D. T.*, on atmosphere in Oroomiah, xix, 273.
meteorology of Oroomiah, xx, 254.
Stoddard, *O. N.*, Brandon Tornado, xviii, 70.
Harrison Tornado, xx, 161.
Stokes, the dispersion of light, xv, 270, xvii, 121.
Stones, strength of building, xi, 1.
Storer, *D. H.*, History of the fishes of Massachusetts, by, noticed, xvi, 150.
Storm of Sept. 1853 and others, *W. C. Redfield*, xviii, 1, 176.
of hail, *E. Loomis*, xvii, 35.
Brandon, xviii, 70.
Harrison, xx, 161.
Strachey, limit of perpetual snow of Himalaya, xi, 244.
physical geography of the Himalaya, xx, 121.
Stratification, origin of, xiii, 13.
Strecker and *Socoloff*, on products of decomposition of hippuric acid, xiv, 100.
Strychnine for adulterating beer, xiv, 422.
for destroying wolves, xiv, 423.
Stuart, *C. B.*, Naval Dry Docks of U. States by, noticed, xiv, 149.
Sturgeon, Wm., obituary of, xi, 444.
Subsidence in the Pacific, xv, 157.
Sugar, manufacture of, xvi, 274.
in Rhododendron ponticum, xi, 280.
vegetable parasites in, xiii, 143.
Sulphate of iron, preservation from oxydation of, xi, 115.
Sulphid of nitrogen, xiii, 114.
Sulphur, equivalent of, xiv, 261.
blowpipe test for, *Bailey*, xi, 351, xii, 394.
bed near Cracow, xii, 390.
lake near Tivoli, *B. Silliman, Jr.*, xii, 258.
waters of Asia Minor, xii, 11, 366.
Sulphuric acid, formation, *Wöhler*, xiv, 99.
Sumatra Camphor tree, xiv, 113.
Sun and solar magnetism, *Thomson*, xix, 104.
total eclipse, xii, 134, 300.
optical investigations connected with eclipse of, xiii, 440.
spots of, xiii, 442, xiv, 444, xv, 290.
disk, heat of, *Secchi*, xiv, 286.
Surinam Toad, *Wyman* on, xvii, 369.

T.

Table turnings, xviii, 119.
Taconic System, review of, xix, 400, 403.
fossils of, *J. Hall*, xix, 434.
Talcose slates, the so-called of the Green Mountains, *T. S. Hunt*, xix, 417.
Tallow tree, *D. J. Macgowan*, xii, 17.
Taurine, artificial production of, xviii, 414.
Taylor G., The Indications of the Creator, xiii, 302.
Taylor, R. C., obituary of, xiii, 144.
list of memoirs of, xiii, 147.
Statistics of coal, noticed, xx, 275.
Taylor, *W. J.*, a new locality of molybdate of iron, xix, 429.
on two minerals in Pennsylvania, xx, 412.
Teas, analysis of kinds of, xi, 249.
Telegraphs, *C. G. Page*, xi, 287.
from Europe to Africa, xv, 270.
Morse's and *Bain's* xi, 71, 79.
Breguet's, xx, 404.

Telegraph, on electric induction of wires of, *Faraday*, xviii, 84.
velocity of galvanic current in, *B. A. Gould*, xi, 67, 153, xii, 304.
copying electric, *F. C. Bakewell*, xii, 278.
electro-chemical, xi, 288.
applied to fire alarms, xiii, 58.
Lectures on the Electro-magnetic, by *L. Turnbull*, noticed, xv, 153, xvii, 423.
Telegraphic communications, thoughts on, twenty years ago, *J. Pickering*, xiii, 431.
longitude, determination of, over Europe, commenced, xvii, 453.
messages simultaneous in two directions, xx, 103.
Telerpeton Elginense, xiii, 278.
Telescopes, specula for, *Sollit*, xvi, 437.
ibid, *Rosse*, xii, 416.
Telescopic appendage, the conical condenser, *E. B. Hunt*, xvi, 432.
Telluret of ethyl, *Mallett*, xiii, 113.
Tellurmethyle, *Wohler* and *Dean*, xix, 318.
Temperatures, causes of change in, *W. Hopkins*, xiv, 282, xv, 72, 248, 334.
mean annual of different parallels of latitude, xv, 82.
Chart, xv, 459.
experiments to ascertain effects of pressure on, commenced by *Hopkins*, xiv, 433.
influence of extreme cold on trees, xiii, 199.
cold of Jan. 1852, in Alabama, xiii, 294.
difference of between earth and air just above it, *Rozet*, xiii, 442.
of the ocean, *J. D. Dana*, xvi, 153, 314.
effect of a supposed change of ocean, *J. D. Dana*, xvi, 391.
of N. Atlantic, *Scoresby*, xvi, 438.
of a part of the Pacific, *W. C. Cunningham*, xv, 66.
from an artesian well in Italy, xviii, 424.
Tenacity of metals, xi, 143.
Tennessee Copper Mine, xix, 181, xx, 53.
geology of, *J. M. Safford*, xii, 352.
geological survey of, ordered, xvii, 452.
Idocrase in, xx, 85.
Terpsinoë musica, locality of, xi, 85.
Terraces of the Red River region, xix, 438.
Tertiary, post-pliocene, of the South, *E. Desor*, xiv, 49.
of Belgium, *C. Lyell*, xiv, 425.
fossil plants in Silesia, xix, 281.
of Spain, xi, 264.
Teschemacher, J. E., on coal vegetation, xii, 438.
Vanadium minerals of L. Superior, xi, 233.
on Stigmaria, xiii, 265.
angles of Eumanite, xiii, 117.
resinous nature of coal, xiv, 70.
obituary of, xvii, 150, 292.
Tevis, R. C., analysis of tea, xi, 250.
Thalia, on the earth, xiii, 420, xvi, 368, xvii, 130.
Thapsus verbascum, white variety of, xi, 442.
Thermal waters, see *Waters*.
Thermogenic apparatus, *Mayer* and *Beaumont's*, xx, 261.
Thermometer absolute zero of gas, *Rankine*, xvii, 274.
Thermotypy, xviii, 438.
Thompson, Wm., obituary of, xiii, 443.
Thompson, Z., ice of Lake Champlain, xii, 22.
meteorological observations at Burlington, Vermont, (1850—1854), xi, 436; xiii, 350; xv, 385, 459; xvii, 445; xix, 278.
Appendix to the History of Vermont, noticed, xvi, 444.
Thomson, T., Life and Labors of, xviii, 441.
Thomson W., freezing point of water lowered by pressure, xi, 115.
on the magnetic field, xix, 117.
Thuret, zoospores of Algæ, xv, 455.
Tides, on our ignorance of the general course of, *Whewell*, xii, 274.
at Cat Island, *A. D. Bache*, xii, 341, xiv, 346.
of Key West, *A. D. Bache*, xviii, 305.
of the White Sea, *Talyzine*, xviii, 292.
lunar atmospheric, xiv, 433.
and tide gauges, Coast Survey, xviii, 206.
Timb's Year Book of Facts, xix, 451.
Tin, alloyed with copper by American Indians, xi, 317.
new radicals containing, xiv, 421, xvi, 116.
Tin pyrites, analysis, *Mallet*, xvii, 33.
Titanic acid, *T. S. Hunt* on, xiv, 345.
Tornado, see *Hurricane*.
Toronto Observatory, xv, 287.
Torrey, J., Plantæ Fremontianæ, on Darlingtonia Californica, and on Batis maritima, noticed, xvi, 424, 426.
Tourmaline, constitution of, xi, 257.
Toxicologie of Flandin, noticed, xvii, 420.
Toxicology, arseniuretted hydrogen in relation to, *R. Napoli*, xviii, 150.
Tracy, C. M., Halos and Parhelia, xiii, 433.
on a lunar rainbow, xiv, 288.
Trask's Report on California, xviii, 302.
Trecul, on vegetable cell, noticed, xx, 278.
Trees, mammoth, of California, xvii, 440; xviii, 150, 286.
large, in Western New York, *S. B. Buckley*, xiii, 397.
freezing of sap in, xiii, 84.
rifting of, in cold weather, xiii, 201.
twist of, *Braun*, xx, 280.
Trembley's Ether machine, xvi, 408.
Trigonocarpon, fruit of a Conifer, xix, 443.
Trigonometry, *Huckley's*, noticed, xi, 299.
Trinidad Pitch lake, *Manross*, xx, 153.
Tulasne, L. R., Mon. Podostemacearum, noticed, xv, 132.
on spermogonia in Lichens xv, 455.
on the Uredineæ and Ustilagineæ, xix, 442.
Tungsten, equivalent of, xii, 113.
phosphuret of, *Wohler*, xiii, 113.
and tungstate of soda, preparation of, *Wright*, xiii, 112.
Tuomey, M., Geology of Florida Keys, xi, 391.
on Black Copper mine of Tennessee, xix, 181.
Fossils of S. Carolina, xix, 451, xx, 128, 301.
Turnbull, L., on the Telegraph, noticed, xv, 153, xvii, 453.
Tuscan lagoons, and lines of fracture and eruption, *Murchison*, xi, 199.
Tylor, A., on changes in sea-level, xviii, 21, 216.

Tyndall, on magne-crystallic action, xv, 124.
on the diamagnetic force, xix, 24.
on diamagnetism and magne-crystallic action, xii, 267.
on laws of magnetism, xii, 427.
peculiarities of the magnetic field, xix, 115.
on magnetic force, xx, 114.
Tyrol, caves in, xiii, 267.

U.

Unity of human race, work on, by *J. Bachman*, noticed, xi, 302.
Universal Exposition, see *Crystal Palace*.
Upham, J. B., acoustic architecture, xv, 215, 348, xvi, 21.
Uranus, perturbations of, xiii, 300.
on satellites of, *E. Loomis*, xiv, 405.
Uricoechea, E., notice of inaugural dissertation, xviii, 447.
on N. Grenada, noticed, xix, 150.
on the Oloba, xix, 243.
gold idols of N. Grenada, xiv, 243.
Urine manganese in, xi, 259.
phosphoric acid in, xiii, 224.

V.

Vacuum, made by means of carbonic acid, xviii, 416.
Valenciennes and *Fremy*, on the composition of eggs, xix 33, 238, xx, 65.
Valleys, formation of, in Alps, *Schlagintweit*, xiv, 364.
Vanadium minerals of Lake Superior, *J. E. Teschemacher*, xi, 232.
Van Arsdale, Comet discovered by, xvii, 444.
Vanarsdale, H., notice of Quekett on the microscope, xiv, 65.
Vegetable Individual, *A. Braun*, xix, 297, xx, 181.
Vegetables, freezing of, xiii, 84, 195, xiv, 445.
Vegetation of coal period, *J. E. Teschemacher*, xii, 438.
See further, *Plants* and *Botany*.
Ventilation, *S. Weber* on, xiii, 374; xiv, 182.
by the parlor fire, *W. Hosking*, xiii, 249.
Verd Antique Marble, xviii, 447.
Vermont, History of, *Z. Thompson*, xvi, 444.
meteorological observations at Burlington in, *Z. Thompson*, xiii, 350.
Verneuil on Geology of Spain, xvi, 124.
Vestiges of Creation, noticed, xi, 144.
Vesuvius, present condition of, *B. Silliman, Jr.*, xii, 256.
on eruption of, xiii, 134, xx, 125.
Victoria Regia, work on by *J. F. Allen*, noticed, xviii, 428.
Vienna Transactions, xix, 151.
Vine disease, xviii, 433.
Vision, binocular, *W. B. Rogers*, xx, 86, 204, 318.
Vital force, *W. I. Burnett* on, xiii, 281.
Volcanic Springs in California, xii, 153, xix, 1.
Volcano of Kilauea, xii, 75, xv, 63, xviii, 96.
Mauna Loa, xiii, 299, 395, xiv, 105, 219, 254, xv, 63.
of Oregon, *Gibbs*, xx, 297.
Vesuvius, xii, 256, xiii, 131, xx, 125.
Vriese, on Marattiaceæ, xx, 131.

W.

Wagner, aldehyde of caprinic acid, xi, 420.
on white precipitate, xiii, 113.
Waile's Geological Report, noticed, xx, 149.
Walckenaer, C. A. de, obituary of, xiv, 449.
Walferdin, on the hydrobarometer, xiii, 269.
Walker, S. C., velocity of current in telegraph wires, xi, 68.
obituary of, xv, 293.
Waltershausen, W. S. von, on rocks of Sicily and Iceland, noticed, xvi, 418.
Ward, N. B., on growth of plants in glazed cases, noticed, xvi, 132.
Ware, H., atmospherical electrical phenomenon, xix, 272.
Warren, J. C., on Mastodon giganteus, noticed, xiv, 454, xv, 367.
supernumerary tooth in Mastodon giganteus, xix, 349.
Warrington, preserving balance of animals and plants in sea water, xvi, 444, xviii, 133.
Washington monument, strength of building material of, xi, 3.
Territory, exploration of, xv, 462.
Water, decomposition of, by an alloy of zinc and antimony, xviii, 229.
expansion of, xvi, 170.
freezing point lowered by pressure, xi, 115.
from rain and snow, analyses of, *E. Marchand*, xiv, 263.
of rain, *Chatin*, xiv, 287.
of surface and bottom of ocean, chemically different, *A. A. Hayes*, xi, 241.
of Blue Lick Spring, xi, 284.
of sea, gypsum in, xiv, 417.
for marine Vivaria, xviii, 133, 293, xix, 146.
of Great Salt Lake, and Hot Springs, *L. D. Gale*, xvii, 129.
thermal, of Asia Minor, *J. L. Smith*, xii, 10, 366.
of Oroomiah, analysis, xx, 255.
Water-spouts on a Lake, *Boué*, xiii, 270.
Watters, J. H., on organic Life Force, noticed, xiv, 453.
Wealden, observations on fossils of, *Mantell*, xiv, 107.
Webb, P. Barker, death of, xviii, 429.
Webber, S., on ventilation, xiii, 374, xiv, 182.
Weights and measures in Turkey, xviii, 431.
Wellingtonia of Lindley, xx, 281.
Wells, D. A., on the distribution of manganese, xiii, 9.
on organic matter in stalactites, xiii, 11.
on the origin of stratification, xiii, 13.
on soils of Scioto Valley, xiv, 11.
Annual of Discovery, by, noticed, xi, 447, xiv, 148.
Wertheim, new varieties of narcotin, xiii, 260.
on producing double refraction in tesseral crystals, xiii, 411, xv, 111.
on double refraction temporarily produced, xviii, 124.
Western Agriculturalist, noticed, xi, 302.
Wetherill, C. M., on adipocire, xix, 452.
on Melan-asphalt, xvii, 130.
on Molybdenite, Zircon and Gold in Pennsylvania, xv, 443, 448.

Wetherill, C. M., on bread of Philadelphia, xx, 303.
Wheat, on gluten of, *Millon*, xvii, 415.
proximate principles of bran of, xvii, 264.
from Ægilops, xx, 134.
Wheatley's Mine, xvi, 422.
Wheatstone on binocular Microscopes, xvii, 146.
strength of building stones, xi, 9.
Whewell, W., Lecture by, on the Great Exhibition, xiii, 352.
on our ignorance of the general course of the tides, xii, 274.
Whirlwinds from burning of Cane-Brake, xi, 181.
White precipitate, *Wagner*, xiii, 113.
Whitlock, G. C., on the normal of curvature, xvi, 231.
Whitney, J. D., Geology of Lake Superior Region, xii, 222, xvii, 11.
Geological map of Keweenaw Point, xvii, 151.
analysis of Algerite and Apatite, xvii, 206.
review of Siluria, xix, 371.
Metallic Wealth of the U. States, noticed, xviii, 274.
on changes in veins, and on E. Tennessee Copper Mine, xx, 53.
Wiedemann, motion of fluids from positive to negative pole, xiv, 420.
rotation of plane of polarization by galvanism, xii, 111.
Wilkes, C., work by, on meteorology of U. S. Exp. Expedition, noticed, xii, 446.
Will, H., Outlines of Chemical analysis, noticed, xix, 295.
Willet, J., Meteoric Iron of Putnam County, Ga., xvii, 331.
Williams, W. G., cloud-belts, xx, 412.
Williamson on formation of ether, xi, 421.
Willow, Weeping, origin of, xix, 301.
Wind in and out Mammoth Cave, xi, 334.
on Mauna Loa, xii, 446.
Winds of North America, *Coffin* on, xviii, 445.
Winslow, C. F., on the supposed elevated coral of Maui, xv, 450.
work by, on Cosmography, noticed, xv, 465.
Wisconsin, meteorological observations at Beloit in, (1850-1853), xi, 354, xiv, 241, xvi, 140, xviii, 146.
geological survey of, xv, 296, xvi, 86, xix, 438.
Wöhler, F., methylic alcohol, xiv, 98.
tellurmethyle, xix, 318.
phosphuret of tungsten, xiii, 113.
Wolff on madder, xi, 109.
Wolffian Bodies, *Burnett*, xvii, 375.
Woodbury, D. P., on the Pendulum Experiment, xiii, 212.
Woodward, S. P., Manual of Mollusca by, noticed, xiii, 449.
Works and Memoirs on Anatomy and Physiology, list of recent, xvi, 266, 403.
on Botany, noticed, xvi, 129, 422, xviii, 284.
on Zoology, list of recent, xvi, 283, 427.
World of Science, noticed, xvii, 453.
Wright, C., collection of plants by, described by *A. Gray*, xv, 259, 319.
Wright, preparation of tungsten and tungstate of soda, xiii, 112.
Wurtz, A., on alkaloids homologous with ammonia, xii, 115.
on butylic alcohol, xix, 268.
Wurtz, H., use of bromine as a toxicological agent, xi, 405.
Wyatt, strength of building stones, xi, 12.
Wyman, J., cranium of the Mastodon, xv, 48.
Eye and organ of Hearing of Blind Fish, xvii, 258.
development of the Surinam Toad, xvii, 369.
nervous system of Rana pipiens, xvi, 251.
Life and writings of Dr. W. I. Burnett, xviii, 255.
on fossil bones in Connecticut river sandstone, xx, 395.
Wythes, J. H., the Microscopist, by, noticed, xii, 451.

X.

Xantheine, and Xanthine, xviii, 435.

Y.

Yak, domesticated in France, xix, 411.
Yandell, on a new Crinoid, xx, 135.

Z.

Zinc, dimorphism of, *Rose*, xiv, 424.
Zinc and antimony, on compounds of, *J. P. Cooke*, xviii, 229, xx, 222.
Zinc oxyd, a furnace product in New Jersey, xiii, 417.
as a pigment, and notice of New Jersey works, *B. Silliman, Jr.*, xiii, 430.
Zincography, xx, 263.
Zirconia, *Berlin* on, xvi, 412.
new test for, *G. J Brush*, xviii, 415.
Zodiacal light, *D. Olmsted* on, xii, 309.
H. R. Birt, xv, 120.
observed in Egypt, xiii, 134.
observed by *G. Jones* on Japan Expedition, xviii, 440, xx, 138.
August 11, 1853, xvi, 288.
Zones of the earth, surface of, xvi, 317.
Zoological distribution, on temperature as limiting it in depth in the sea, xv, 204.
Geography, chart illustrating, *J. D. Dana*, xvi, 314.
Society for the Acclimation of Animals, xvii, 414; xix, 108, 410; xx, 405.
specimens, mode of giving flexibility to, xviii, 100.
specimens, preservation of, *H. Goadby*, xii, 378, xiii, 15, 227.
Zoology—
of British Seas, zones of species in depth, *Forbes*, xiii, 124.
of Mozambique, xvi, 285.
in *Stansbury's* Report, xv, 134.
notices of works on, xvi, 283, 427.
Principles of, by *Agassiz* and *Gould*, noticed, xi, 447.
on classification in, *Agassiz*, xi, 122.
on value of word species, *Morton*, xi, 275.
physiological papers on, see *Burnett*.

ZOOLOGY—
Conchology, works on, by *C. B. Adams*, noticed, xi, 302, xiv, 452.
Catalogue of Shells by *Jay*, noticed, xii, 447.
on primitive diversity and number of animals in geological times, xvii, 309.
freezing of animals, xiii, 84, 143, 438.
Animalcules, *Pritchard* on, noticed, xv, 299.
Actiniæ of Falmouth, xiv, 293.
Annelida, investigated by *J. Leidy*, xi, 274.
Aphides, viviparous, *W. I. Burnett*, xvii, 62.
Birds of New Zealand, xi, 102, 286, 434.
of California, etc., by *J. Cassin*, noticed, xvi, 287, xviii, 157, xix, 142.
Bryozoa, xi, 86.
Cirripedia, *Darwin* on, noticed, xiv, 125, xix, 272.
Conchology, see *Mollusca*.
Corals, see *Corals*.
Crinoid, new, *Yandell*, xx, 135.
Crustacea, see *Crustacea*.
Cumae, *L. Agassiz* on, xiii, 426.
Diatomaceæ. *Bailey*, xi, 349, 351.
Dinornis, *Owen*, xii, 452.
Echini, Saxicavous, xix, 137.
Echinoderms, *Müller* on, noticed, xiv, 293.
Elephant, fossil, see *Elephant*.
Entozoa, infusoria the larval state of, *L. Agassiz*, xiii, 425.
Fish, etc., of Mammoth Cave, xi, 127, 332; ibid, *J. Wyman*, xvii, 258.
work on, Cottoids, *C. Girard*, noticed, xiii, 148.
See further, *Fishes*.
Foraminifera, xi, 86, 121, 125.
Gnathodon beds of Mobile, *Hale*, xi, 164.
Graptolites, xi, 187, xiv, 128, xvi, 281.
Hydra, nettling organs of, *Leidy*, xi, 275.
Ibis guarauna in New England, xi, 435.
Infusoria, see *Infusoria*.
Insects, localities and habits of some, *J. P. Kirtland*, xvii, 444.
Two new insects, *J. P. Kirtland*, xiii, 336.

ZOOLOGY—
Libythea Bachmanii, xiii, 336.
Macroglossa balteata, xiii, 337.
Mammalia described by *J. Leidy*, xi, 274, xv, 303, xvi, 281.
Mermithes, *Burnett*, xviii, 107.
Mastodon, see *Mastodon*.
Megatherium, *Owen*, xiv, 91.
Mollusca, see *Mollusca*.
Nemertes and Planariæ, *Girard*, xi, 41.
Noctilucæ, phosphorescence of, xv, 193, xvi, 69.
Notornis, *A. Mantell*, xi, 102.
Pamphagus, a new animalcule, *Bailey*, xv, 341.
Planariæ and Nemertes, xi, 41.
Planariæ related to intestinal worms, *Agassiz*, xiii, 425.
Psorospermia, *Burnett*, xviii, 104.
Rana pipiens, nervous system of, *J. Wyman*, xvi, 251.
Renal organs, on the, *Burnett*, xvii, 374.
Reptiles of N. York, *Baird* on, referred to, xix, 452.
American, *Baird* and *Girard* on, xv, 465.
Reptilian remains, *G. A. Mantell*, xiii, 278.
See further, *Reptile*.
Serpents of N. York, *Baird* on, noticed, xviii, 448, xix, 453.
Serpents, fossil, *Owen*, xi, 281.
Surinam Toad, development of the, *J. Wyman*, xvii, 369.
Terpsinoë musica, xi, 85.
Tiaropsis, *L. Agassiz* on the genus, xiii, 425.
Trilobites, xi, 126.
Unio and the Naiades, work on by *I. Lea*, noticed, xx, 301.
Zoophytes, observations on, *J. D. Dana*, xii, 165.
See further, *Fossil*.
Zschau on Heulandite, Scapolite, and a twin between Malacone and Xenotime, xx, 272.

ADDITIONAL ERRATA—Vol. xiv, p. 105, top, for W. T. BLAKE, *read* W. P. BLAKE; line 21, for N. Y., *read* N. J.—P. 131, Table, for 1852 *read* 1851.—P. 411, l. 16 from bottom, for carb. of lime, *read* carb. acid.

Vol. xv, p. 448, l. 26, for 174, read 147.

Vol. xviii, p. 411, for Schmiedeberg, *read* Schmiedefeld.

Vol. xx, p. 424, before 8th l. from bottom, insert, *Kunze*, xiii, 424; and after *Hooker*, add, xiv, 427, xvii, 241, 334, xviii, 132.—P. 434, 16th l. from top, before xvi, insert xiv, 128.

GENERAL INDEX

OF

VOLS. XXI—XXX, SECOND SERIES.

A.

Absorption of matter by surfaces of bodies, xxi, 296.
Absorptive properties of Soils, xxviii, 71.
Acad. Arts and Sci., Boston, Proceedings of, xxi, 152.
Acad. Nat. Sci. California, Proceedings, xxiii, 299, xxv, 152.
Philad., Journal of, noticed, xxi, 303, xxiii. 151, xxv, 304.
Proceedings of, xxi, 152, 304, 451, xxii, 152, 455, xxiii, 152, xxv, 304, xxvi, 156, 450, xxvii, 156, 304, 452.
at Paris, xxii, 264.
prizes at, xxi, 403, xxiv, 255, xxv, 433, xxviii, 119.
at St. Louis, officers of, xxii, 301.
Transactions of, xxiii, 450, xxvi, 155.
Acclimation, xxix, 271.
of Dromedary in S. A., xxviii, 431.
of Animals and Plants in France, xxvi, 261.
Society of, xxiii, 107, xxvi, 398.
Acetylamin, *Natanson*, xxii, 406.
Acid, carbonic, in mineral waters, *Storer*, xxv, 41.
formic, from carbonic, xxii, 403.
formula of oxalic, xxiv, 425.
fulminuric, xxi, 129.
gallic and gallhumic, xxviii, 383.
gallic, derivatives of, xxv, 101.
glyoxalic, xxiv, 426.
hippuric, xxii, 102.
isocyanuric, xxi, 129.
lactic, xxviii, 144.
nitric, action on metallic chlorids, xxv, 371.
picric, *Lea*, xxvi, 379.
propionic, xxvi, 401.
sulphuric, on means of rectifying, *N. Neese*, xxx, 267.
fluoriferous, and its purification, *J. Nicklès*, xxiv, 397.
tartaric, combinations with saccharine matters, xxv, 101.
toluic, xxi, 132.
trinitrophenic, xxviii, 278.
Acids, monobasic, amids of, xxiv, 142.
organo-thionic, xxiv, 142.
stannic, silicic and zirconic, isomorphous, xxviii, 437.
Aconcagua, height of peak of, xxvi, 411.
Aërostats, xxiii, 109.
Africa, discoveries in, xxii, 116.
interior of, *D. Livingstone*, xxix, 237.
native iron of, *Hayes*, xxi, 153.
new explorations in, xxvi, 223, 373.
African explorations, *Burton's* and *Roscher's*, xxvii, 234, xxviii, 94, 411.
Desert of Sahara, xxvi, 374.
geographical discoveries, xxv, 306.
Livingstone's discoveries, xxiii, 139.
Agardh, C. A., death of, xxix, 441.
Agassiz, Contributions to the Natural History of the U. States, noticed and reviewed, xxv, 126, 202, 321.
on Cumæ, xxii, 285.
on Marcou's Geology, xxvii, 134.
on origin of species, xxx, 142.
on the animals of Millepora, xxvi, 140.
on the Embryology of the Turtle, xxv, 342.
on young Gar Pikes of Lake Ontario, xxiii, 284.
Agassiz's Contributions to the Nat. Hist. of the U. S., notice of, xxx, 142.
eulogy on *Humboldt*, xxviii, 96.
return from Europe, xxviii, 450.
Agricultural Exhibition, Paris, xxii, 264.
Science, some points of, by *S. W. Johnson*, xxviii, 71.
Agriculture of Rome, xxv, 302.
Year-book of, xxi, 151.
Aikin, W. E. A., illuminating power of coal gas, xxvii, 82.
Air-balance barometer, *J. B. James*, xxvi, 271.
Airy, G. B., pendulum experiments for determining mean density of the earth, xxi, 359.
Alcohol from Sorghum, xxvi, 262.
amylic, *Pasteur*, xxi, 132.
manufacture of, new mode, xxi, 259.
on a new biacid, *Limpricht*, xxiv, 262.
products of oxydation of, xxiii, 268.
Alcoholic liquors, on curious motions in, *J. Thompson*, xxi, 295.
Alcohols, new, by *Berthelot*, xxviii, 277.
new series of, *Wurtz*, xxix, 427.
Alcohols, new class of, *Cahours* and *Hofmann*, xxi, 414.
Alexander, F. H., ultimate analyses of animal oils, xxi, 133.

Alexander, J. H., chemical examination of brown sugar, xxv, 393.
Dict. of English Surnames, announcement of, xxix, 304.
Algæ, *Harvey* on American, xxvii, 142.
Alleghanies, *Guyot's* measurements of, and map of, xxx, 391, 392.
Allen, C. J., on aurora of 1859, xxix, 259.
Allen, G. F., on aurora of 1859, xxix, 264.
Alum in China, *Macgowan*, xxvi, 444.
Alumina, separation of, from iron, xxvi, 400.
Aluminum, xxi, 258, 404, xxiv, 261.
alloys of, xxiii, 265.
leaf, xxix, 430.
manufacture of, xxiii, 111, xxviii, 126, 160.
on preparing from cryolite, *H. Rose*, xxi, 129, 164, xxii, 405.
preparation of, *Brunner*, xxii, 403.
watch, xxii, 301.
America, history of the discovery of, xxviii, 419.
maps of tropical, xxvii, 57.
American Association for the Advancement of Science, notice of Albany meeting, xxii, 150, 441.
Proceedings, xxiv, 301.
eleventh meeting, list of papers, read at, xxiv, 302.
time of meeting, xxv, 303.
proceedings of 12th meeting, xxvi, 150.
13th meeting, xxviii, 293.
fourteenth meeting, account of, xxx, 298.
list of papers read at, xxx, 299.
Druggist's Circular and Chem. Gaz., noticed, xxix, 282.
Geog. Soc., Journal of, noticed, xxx, 217.
Pharmaceutical Assoc., proceedings of, noticed, xxvi, 154.
Philosoph. Soc., Philad., Proceedings of, xxii, 304.
Amids of monobasic acids, *Cahours*, xxiv, 142.
Ammonia-cobalt bases, *Gibbs* and *Genth*, xxiii, 234, 319, xxiv, 86.
Amoor, survey of the, xxvii, 53.
region, explorations in, xxix, 402.
Amorphism, *von Fuchs* on, xxiii, 227.
Amylene in anesthesis, xxv, 95.
preparation of, xxiv, 412.
Amylic alcohol, *Pasteur*, xxi, 132.
Analysis by means of spectra, xxx, 415.
mode of minute weighing, *McMayer*, xxv, 39.
use of the prism in qualitative, *Gladstone*, xxiv, 263.
Analytical chemistry; action of nitric acid on metallic chlorids, *Wurtz*, xxv, 371.
Anatomical models, xxiii, 147.
Andes, ascent of Chimborazo in, xxv, 141.
Andrews, E. B., on fall of meteoric stones, xxx, 103.
Aneroid barometer, observations with, *H. Poole*, xxiii, 146.
Anesthesis by amylene, xxv, 95.
by carbonic acid, xxiv, 412, xvvi, 264.
Anesthesis by oxyd of carbon, xxiv, 412.
by projection, xxv, 95.
Angora Goats, acclimation of, xxvi, 263.
Animal muscle, composition of, xxii, 9.
psychology, *Weinland*, xxvii, 1.
Annals of Lyceum Nat. Hist. of N. York, xxvii, 304.
Antimony, equivalent of, xxii, 107.
Ansted's Geology and Mineralogy, noticed, xxiii, 148.
Antisell on photogenic oils, review of, *F. H. Storer*, xxx, 112, 254.
Geological Report, noticed, xxvi, 126.
Aquarian Naturalist, by *J. Rymer Jones*, noticed, xxvi, 436.
Aquarium, history of, xxv, 97.
in America, by *Edwards*, noticed, xxvi, 284.
on effect of excess of heat or light on, *R. Warington*, xxi, 437.
Arago, works of, noticed, xxii, 269, xxiii, 444, xxix, 420.
Archæology, general views on, *A. Morlot*, xxix, 25.
Archimedes, *J. Hall* on, xxiii, 203.
Arctic America, Geology of, *Isbister*, xxi, 313.
buried wood of, *R. I. Murchison*, xxi, 377.
lignite of, xxi, 329.
I. I. Hayes, on reaching the pole, xxvi, 305.
new expedition, 1860, xxx, 159.
geology, *Haughton*, xxvi, 119.
ocean, explorations, xxv, 84, 384.
polar sea, observations on, xxiv, 244.
pole, passage to, *I. I. Hayes*, xxv, 384.
turf, *Kane*, xxiv, 242.
Arru Islands, once part of Australia, xxv, 280.
Arsenic does not poison larvæ of flies, xxviii, 166.
eating, influence of on waste of animal tissue, *F. H. Storer*, xxx, 209.
in toxicology, xxv, 96.
plants poisoned by, xxix, 440.
separation from antimony and zinc, xxvi, 400.
toleration of plants for, xxviii, 443.
Artesian boring, method of, xxi, 404.
well at Columbus, O., *W. W. Mather* on, xxvii, 276.
at Grenelle, xxv, 283.
at Lafayette, Indiana, *Wetherill*, xxvii, 241.
at Louisville, *J. L. Smith*, xxvii, 174.
at Mondorf, xxiv, 158.
at Passy, xxiii, 108.
wells, aerating water of, xxiv, 261.
in Sahara, xxv, 140.
Artificial corundum, *Gaudin*, xxiv, 273.
furnace products, xxii, 248.
milk, xxiii, 114.
minerals, xxvi, 259.
mineral silicates and aluminates, xxi, 194.
formed by action of vapors, *Daubrée*, xxi, 194.
Ash of Lycopodium, xxiv, 143.
Asia, Semenow's explorations, xxvii, 227.
survey of India, xxvii, 231.

Association, British, 29th meeting, xxviii, 450.
see American and British.
Astronomy—
Asteroids,
36, Atalanta, xxi, 138.
37, Fides, xxi, 138.
38, Leda, xxii, 140.
39, Lætitia, xxii, 140.
40, Harmonia, xxii, 440.
41, Daphne, xxii, 441.
42, Isis, xxii, 441.
43, Ariadne, xxiv, 289.
44, Nysa, xxiv, 289.
45, Eugenia, xxiv, 289, xxv, 447.
46, Hestia, xxv, 128.
47, Aglaia, xxv, 128.
48, Doris, xxv, 128.
49, Pales, xxv, 128.
50, Virginia, xxv, 128.
51, Nemausa, xxv, 447.
52, Europa, xxv, 447.
53, Calypso, xxvi, 146.
54, Alexandra, xxvi, 433, xxvii, 284.
55, Pandora, xxvi, 433, xxviii, 284.
56, Daphne, 2nd, xxvii, 284.
57, Mnemosyne, xxix, 136.
58, Concordia, xxx, 424.
59, xxx, 424.
Catalogue of meteorites at Vienna, *W. Haidinger*, xxix, 139.
Clark's new micrometer, xxix, 296.
Comet, first of 1860, *Liais*, xxx, 141.
2nd of 1860, *G. Rümker*, xxx, 141.
3d of 1860, *C. W. Tuttle*, xxx, 292.
Comets, theoretical determination of dimensions of Donati's, *W. A. Norton*, xxix, 79, 383.
4th, 5th, 7th of 1858, xxvi, 433, 435.
Der Meteoreisenfall von Hraschina, *W. Haidinger*, xxix, 300.
Eclipse, of Sept. 1858, xxvi, 434.
on total solar, of July 18, 1860, xxx, 157.
Barnard, F. A. P., xxx, 281.
Faye, xxix, 136.
Gilliss, J. M., xxx, 285.
Le Verrier, xxx, 309.
Secchi, A., xxx, 288.
"Baily's Beads," *Lespiault*, xxx, 292.
polarization of corona and red protuberances, *Praznowski*, xxx, 292.
New double stars, *A. Clark*, xxix, 297.
planet, on alleged intra-mercurial, *E. C. Herrick*, xxix, 296, 415, xxx, 141.
Astronomical charts of the ecliptic, xxiii, 108.
observations, (Oxford), xxviii, 303.
for 1848, *M. F. Maury*, xxiv, 447.
Observatory of Harvard, annals of, xxii, 303, xxiv. 448.
at Albany, xxii, 442.
prizes for 1856, Lalande, xxiv, 259.
star charts, notice of, xxiv, 415.
Atkinson, on glycol, xxviii, 146.
Atlantic cable, xxvi, 285, 424, 440.
G. Mathiot, xxvii, 157.
Atlas of N. America, *Black's*, xxvi, 448.
Atmosphere, height of, xxvii, 449.
Atmospheric, see *Barometric.*
Atomic equivalent of Antimony, xxii, 107.
Atomic weight of Lithium, *Mallet*, xxii, 349.
Atomic weights, see *Equivalents.*
Aurora Borealis—
appeal to observers, xxviii, 407.
arch of April 29, 1859, xxviii, 154, 408.
Austria, xxix, 395.
Bermuda, xxix, 261.
Bloomington, Ind., *D. Kirkwood*, xxviii, 396.
Boston, Mass., *G. B. Prescott*, xxix, 92.
Brussels, *Quetelet*, xxix, 392.
Burlington, N. J., *B. V. Marsh*, xxix, 258.
Canada, 1855, *Smallwood*, xxi, 288.
Charleston, S. C., xxix, 261.
Christiania, Norway, *C. Hansteen*, xxix, 387.
Cohe, Cuba, *G. F. Allen*, xxix, 264.
Conception, Chili, xxix, 398.
Crawfordsville, Indiana, *J. L. Campbell*, xxix, 258.
De la Rive's theory of, xxix, 269.
effect of, on telegraph wires, xxix, 391, 394, 396.
electrical effects of, *G. B. Prescott*, xxix, 93.
England, by various observers, xxix, 388, 389, 390.
exhibition of, August, 1859, xxviii, 385, xxix, 92.
Galveston, Texas, *C. G. Forshey*, xxix, 263.
geographical distribution of, *E. Loomis*, xxx, 89.
Grafton, Canada W., *J. Hubbert*, xxix, 252.
Guadeloupe, W. Indies, xxix, 265.
Halifax, *N. Home*, xxix, 251.
Havanna, Cuba, *M. A. Poey*, xxviii, 403, xxix, 264.
height of the base of the curtain, xxviii, 406.
Inagua, Bahama Islands, xxix, 264.
Jefferson Co., Miss., xxviii, 402.
Kapunda, S. Australia, xxix, 399.
Key West, xxix, 264.
Kingston, Jamaica, xxix, 265.
La Union, San Salvador, xxix, 265.
Lewiston, Me., xxviii, 386.
Louisville, Ky., xxix, 261.
Lunenburg, Mass., *W. B. Rogers*, xxix, 255.
magnetic effects of, xxix, 391.
Mobile, Ala., xxix, 262.
Montreal, *A. Hall*, xxix, 249.
New Haven, Conn., *C. S. Lyman*, xxviii, 391.
New Orleans, La., xxix, 263.
Newburyport, Mass., *H. C. Perkins*, xxix, 254.
New York, *J. C. Crosson*, xxix, 96.
observations of, at sea, xxix, 264.
observations of ozone during, xxix, 392.
of 1859, *E. Loomis*, xxx, 79, 339.
Paris, France, *C. Gravier*, xxix, 390.
Philadelphia, *C. J. Allen*, xxix, 259.
Pittsburgh, Pa., *E. W. Culgan*, xxix, 97.
Point Barrow, Arctic, xxv, 103.

Aurora Borealis—
remarks on, *W. A. Norton*, xxvii, 86.
Rochester, N. Y., *C. Dewey*, xxix, 253.
Rome, *Secchi*, xxix, 397.
Sacramento, Cal., *T. M. Logan*, xxix, 269.
San Francisco, Cal., *J. B. Trask*, xxviii, 406.
Sandy Spring, Md., *R. Hallowell*, xxix, 259.
Santiago, Chili, xxix, 399.
Savannah, Ga., xxix, 262.
in Southern hemisphere, xxix, 398.
Springfield, Mass., *J. E. Selden*, xxix, 95.
Springhill, Ala., *A. Cornette*, S. J., xxviii, 398.
St. Louis, Mo., xxix, 261.
St. Paschal, *C. Smallwood*, xxix, 251.
St. Valery, France, *H. Lartigue*, xxix, 390.
Steubenville, Ohio, xxix, 256.
Stockton, Cal., xxix, 269.
telegraph worked by Auroral current, at Boston, *G. B. Prescott*, xxix, 94.
Toronto, C. W., *G. P. Kingston*, xxviii, 388.
Washington, D. C., *F. W. Royce*, xxix, 97.
Western Asia, *T. Jewett*, *C. H. Wheeler*, *H. B. Haskell*, xxix, 398.
West Point, N. Y., *A. C. Twining*, xxviii, 394.
White River Junction, Vt., *J. H. Norris*, xxix, 95.
Austin, J. B., on aurora of 1859, xxix, 399.
Australia, former connection with New Guinea, and the Arru Islands, xxv, 280.
geography of, xxviii, 89.
submarine plateau, *Earl*, xxvi, 442.
Australian Exploration, xxvi, 94, xxvii, 59, 237.
Austrian Exploring Expedition, xxiv, 260.
Azoic (crystalline) rocks of North America, xxi, 318.

B.

Babcock, E., on aurora of 1859, xxx, 352.
Babinet's Etudes, &c., noticed, xxi, 408.
Bache, A. D., chosen Foreign Member of Royal Soc. of London, xxx, 159.
cotidal lines of the Atlantic coast of U. States, xxi, 14.
of the Pacific coast of U. States, xxi, 22.
distribution of temperature in and near the Gulf Stream, xxi, 29.
earthquake waves on the western coast of U. States, xxi, 37.
European plagiarisms, xxiii, 139.
Geographical medal to, xxvi, 154.
Gulf Stream explorations, xxix, 199.
Lecture on Gulf Stream, xxx, 313.
measurement of a base, in the Coast Survey, xxv, 58.
on cause of increase of Sandy Hook, xxiii, 16.
on determining latitudes by Talcott's method, xxvi, 343.
Bache, A. D., on declinometer observations, xxix, 36.
on Prediction tables for Tides of U. S. coast, xxiii, 12.
Terrestrial Magnetism in U. States, xxiv, 1.
tidal currents of New York Bay, near Sandy Hook, xxvi, 334.
tidal observations on the Gulf of Mexico, xxi, 28.
tidal wave of Hudson River, xxiii, 17.
tides of Atlantic coast, xxv, 47.
of Gulf of Mexico, xxiii, 1.
of W. coast of U. States, xxi, 1, 10.
winds of the W. coast of U. S., xxv, 52.
Bacon, E. E., on aurora of 1859, xxx, 342.
Bail, L., Drawing System, notice of, xxix, 151.
Bailey, J. W., bequest by, to the Boston Soc. Nat. Hist., xxiv, 158.
biography of, *Gould*, xxv, 153.
examination of Atlantic soundings, xxiii, 153.
new method of distintegrating masses of fossil Diatomaceæ, xxi, 356.
new mode of cleaning Diatomaceous deposits, xxi, 145.
non-existence of polarizing silica in the organic kingdoms, xxi, 357.
obituary of, xxiii, 447.
origin of Greensand, xxii, 280.
remarks on Mr. Wenham's paper on aperture of object glasses, xxi, 105.
Soundings in the sea of Kamtschatka, xxii, 1.
specimens from deep sea bottom, sea of Kamtschatka, xxi, 284.
Baird, S. F., his work on mammals of N. America, xxviii, 158.
on N. American birds, xxvii, 147.
Zoology of the Pacific Railroad routes noticed, xxvi, 142.
Bakewell, R., on the Falls of Niagara, xxiii, 85.
Balance, fish-rod, *Riddell*, xxvi, 71.
of Wisdom, or the water balance, notice of, xxviii, 450.
Baldwin, A. J., on aurora of 1859, xxx, 348, 359.
Ballou, N. E., on aurora of 1859, xxx, 342.
Barium, preparation of cyanid of, *Marguerite* and *De Sourdeval*, xxx, 268.
Barnard, F. A. P., on solar eclipse of July 18, 1860, xxx, 281.
on the pendulum, xxvii, 184.
on the zodiacal light, xxi, 217, 399.
Barnard, J. G., on elongated projectiles, xxix, 190.
on the gyroscope, xxiv, 49, xxv, 67, 417.
on tides, xxvii, 349.
Barometer, made with sulphuric acid, xxii, 449.
Secchi's new, xxiii, 291.
Barometric action during a tornado, *J. Chappellsmith*, xxiii, 18.
pressure, annual variations in Gulf of St. Lawrence, *Kelly*, xxv, 448.
Barreswill and *Davanne*, photographic chemistry, xxviii, 160.

Barrington's work on Polar exploration, xxv, 84, 384.
Barth, H., in Asia Minor, noticed, xxx, 398.
Barth's African discoveries, xxv, 306.
Bartlett, G., Climate of California, xxii, 291.
Bartlett's Spherical Astronomy, noticed, xxi, 149.
Bartlett, W. H. C., comas and tails of comets, xxix, 62.
on molecular motions in polarized light, xxx, 361.
Baryta, solubility of sulphate of, xxvii, 120.
Bean, J. R., on aurora of 1859, xxx, 348, 360.
Bentham, G., on generic nomenclature, xxiv, 284.
on genus Clitoria, xxiv, 282.
Bentham's Synopsis of Dalbergieæ, notice of, *A. Gray*, xxx, 138.
Berkeley, J., on Cryptogamic botany, noticed, xxiv, 151.
Bermudas, notes on, *A. Scott*, xxiv, 274.
Bernard, C., experiments on curare, xxix, 269.
Berryman's Sea Soundings, xxvi, 219.
Berthelot, on combinations of hydracids and hydrocarburets, xxiv, 423.
on combinations of saccharine substances and acids, xxi, 119.
on new alcohols, xxviii, 277.
Bertoloni, Miscellanea Botanica, noticed, xxiv, 287.
Bessemer's process for making iron, xxii, 406.
Bibliographical notices, xxviii, 159, 303, 431, 444, xxix, 146, 302, 420, 453, xxx, 142, 306.
by *Nicklés*, xxiv, 262, 413, xxvi, 263.
Bill, J. H., test for Cinchonia, and molyb. ammonia test for phosphoric acid, xxvi, 109.
Billings, E., on fossil corals of Canada West, noticed, xxviii, 152.
new genera of Brachiopods in Canada, xxviii, 152.
note on a new trilobite, xxx, 242.
on Potsdam fossils, xxx, 337.
Binney's, Amos, "Terrestrial Mollusks," etc., to be continued, xxiii, 292.
Binney, W. G., notes on American land shells, noticed, xxvii, 302.
Supplement to "Terrestrial Air-breathing Mollusks," &c., xxix, 294.
Binocular vision, law of, *Dingle*, xxvii, 262.
W. B. Rogers, xxi, 80, 173; postscript to, xxi, 439.
experiments on, xxx, 387.
Black Hills, geology of, xxvi, 276.
Black's Atlas of North America, xxvi, 448.
Blake, E. W., stereoscopic advertisements, xxx, 304.
Blake, W. P., auriferous drift of California and Georgia compared, xxvi, 128.
editor of Mining Magazine, xxix, 145.
evaporation at the Tulare lakes, California, xxi, 365.
Blake, W. P., Geol. Rep. on California, noticed, xxvi, 122.
Marcou's geological map, xxii, 383.
on Chalchihuitl, xxv, 227.
Report on California, noticed, xxv, 317.
telluret of silver, Cal., xxiii, 270.
Blaker, G. H., on aurora of 1859, xxx, 340.
Blakiston, Capt., on the exploration of two passes of the Rocky Mts., xxviii, 320.
Blavett, W., on aurora of 1859, xxx, 358.
Bleaching, by carbonic acid with hypochlorite of lime, *F. Didot* and *L. Barruel*, xxx, 271.
Blodget, L., contributions to Army Meteorological Register, xxi, 446.
Blodget's U. S. Climatology, noticed, xxiv, 299.
reviewed, xxv, 235.
Blood, on fluorine in, *Nicklès*, xxiii, 101.
variation of color in venous, of the glands, xxvi, 265.
Blowpipe Analysis, Manual of, by *W. Elderhorst*, noticed, xxii, 303.
experiments, xxix, 114.
on increasing heat of, *Wurtz*, xxvii, 179.
Boettger, on gun-cotton filters, xxx, 268.
restoration of crumpled feathers, xxvii, 121.
Boilers, on incrustations, *H. Wurtz*, xxvi, 369.
Bolivia, new map of, xxviii, 95.
population of, xxviii, 96.
Bonaparte, C. L., death of, xxiv, 299.
Bond, W. C., obituary of, xxvii, 303.
Bond, G. P., on Donati's Comet, xxvi, 434, xxvii, 148.
Bonpland, obituary of, xxvi, 301.
Boric acid, quantitative determination of, xxiii, 268.
Boron, xxiv, 261.
Q. Sella, xxvi, 110.
Wöhler and *Deville*, xxiii, 433, xxv, 271.
Boston Soc. Nat. Hist., Journal of, xxv, 304.
proceedings of, xxi, 152, xxii, 152, xxiii, 152, 304, 452, xxv, 152, xxvi, 156, xxvii, 156, 452.
BOTANY—
Action of foreign pollen on the fruit, xxv, 122.
Agricultural Botany in the Western States, *Lapham*, xxvi, 139.
Ancient vegetation of N. A., *J. S. Newberry*, xxix, 208.
Australian Expedition, *Müller's* Botanical Report, noticed, xxvi, 283.
Bentham, Notes on Loganiaceæ, noticed, xxii, 433.
on genus Clitoria, xxiv, 283.
Bentham's British Flora, xxvi, 413.
synopsis of Legnodidæ, xxvii, 438.
Berkeley, xxiv, 151.
Bertolini, xxiv, 287.
Boussingault on nitrogen for plants, xxv, 120.
Braun's Algarum, etc., xxi, 283.
Bromfield, W. A., xxiii, 127.
Bueck, Index ad DeCand. Prodrom., notice of, xxx, 276.

BOTANY—
Caricography, xxviii, 231.
C. Dewey, xxiv, 46.
Caspary, xxiv, 154.
Cause of opening and closing of Stomates, *H. von Mohl*, xxiii, 280.
Characées, *Wallman*, xxvi, 138.
Chatin, xxiv, 155.
Cuban plants, xxix, 127.
Curtis's survey of N. C., pt. III, containing a catalogue of the plants of the state, noticed, xxx, 275.
Darlington's American weeds and useful plants, xxvii, 437.
De Candolle, xxii, 429, xxiii, 126.
De Candolle's Géographie Botanique raisonnée, xxi, 134.
Prodromus, xxv, 290.
Dragon-tree of Orotava, xxii, 135.
Elogio di F. B. Webb, xxvi, 138.
Embryo in Plants, xxii, 135.
Engelmann, xxiii, 128.
Ferns of Cuba, *Eaton*, xxvii, 197.
three new, from Cal. and Oregon, *D. C. Eaton*, xxii, 138.
Flora Brasiliensis, *Martius*, noticed, xxix, 438.
of Australia, xxvi, 283.
J. D. Hooker, xxix, 316.
Flora v. Nied. Indië, xxi, 283.
Florula Ajanensis, notice, xxix, 436.
Flowers of pea-nut, xxii, 435.
fossil of N. America, xxviii, 21, 85.
Girard's Reports of Explorations and Surveys, noticed, xxx, 277.
Gray, A., xxii, 437, xxiii, 280, 439.
Gray's How Plants Grow, xxvi, 139.
Griffith and *Henfrey's* Mic. Dictionary, xxi, 283.
Grisebach's Untersuchung. Guadeloupe, xxvi, 138.
Hairs of Urticaceæ, xxvi, 419.
Harvey, xxiv, 288.
Henfrey, A., xxiii, 278.
Henfrey's Elementary Course of, xxiv, 434.
Hoffmann, xxiv, 153.
Hooker and *Thomson's* Flora Indica, xxvi, 283.
Hooker on the Balanophoreæ, xxv, 116.
Hooker's Flora Indica, xxi, 134.
Indigofera Caroliniana, xxiv, 288.
Japan, of, *A. Gray*, xxviii, 187.
Jour. Proc. of Linnæan Soc., xxix, 437.
Lehmann, xxiv, 153.
Lichens in N. America, *Tuckerman*, xxv, 422.
Linn. Soc. Proc., xxii, 134, xxiv, 281, xxv, 292, xxvi, 137, 283, 412, xxvii, 438.
Linnæus and the name Buffonia, xxvi, 283.
Lotus or Sacred bean of India, xxvi, 418.
Madeira, of, notes on, xxii, 134.
Madeira, &c., origin of species, xxiii, 130.
Martius's Flora Brasiliensis, xxii, 137, 436, xxvi, 412.
Marsilea quadrifolia, note on, *A. Gray*, xxx, 140.
BOTANY—
Meisner, xxii, 135.
Michaux, xxii, 137.
memoir of, *Durand*, xxiv, 161.
Miers's S. American plants, xxvi, 413.
Miquel's Batavian flora, xxv, 111.
Monograph of Eucalypti, xxvii, 438.
Monstrosity of Saponaria officinalis, xxiv, 281.
Motions of winding plants, *Brewer*, xxvii, 202.
Müller, xxiv, 286.
Naudin's researches, xxiv, 440.
Necrology for 1857, xxv, 293.
Nereis, etc., of, *W. H. Harvey*, xxvii, 142.
Nomenclature in, *G. Bentham* on, xxiv, 284.
N. American lichens, xxviii, 200.
N. California, &c., xxviii, 152.
Northern United States, statistics of plants, *A. Gray*, xxiii, 62, 369.
Notes on Abuta, xxvii, 439.
on Loganiaceæ, xxii, 433.
Notice of Distribution of Forests and Trees of North America, by *J. G. Cooper*, xxix, 128.
of Systematic Arrangement of species of Cuscuta, by *George Engelmann*, xxix, 128.
Notices of works on, *A. Gray*, xxiii, 126, 278, 438, xxiv, 151, xxv, 109, 290, xxvi, 135, 279, xxvii, 142, 437.
Nylander's Synopsis, &c., xxvi, 413.
Obituary of R. Brown, xxvi, 279.
Orchidaceous plants of Cuba, xxvi, 137.
Ovule of Magnolia, xxvi, 137.
Parthenogenesis, *Regel*, xxvii, 310, 440.
Pear, flower and fruit of, *Decaisne*, xxv, 123.
Plants poisoned by arsenic, xxix, 440.
Potamogeton crispus, note on, *A. Gray*, xxx, 139.
Potatoes of New Mexico and Texas, xxii, 284.
Primitiæ Flora Amurensis, noticed, xxix, 436.
Pringsheim's Jahrbuch, xxv, 112.
Radlkofer, xxii, 432.
on fecundation, xxv, 112.
Ravenel, xxiii, 439.
Re-discovery of Asteranthos, xxvii, 438.
Reinwardt's Batavian plants, xxv, 293.
Salices Boreali-Americana, *N. J. Andersen*, noticed, xxvi, 138.
Seemann, xxiii, 127.
Seemann's Botany of the Herald, xxv, 116.
Statistics of the Flora of the Northern United States, *Gray*, xxii, 204.
Steudel's Syn. Plant. Glumaceæarum, xxi, 282.
Sullivant, W. S., xxiii, 129.
Sullivant and *Lesquereux*, xxiii, 438.
Synop. Method. Lichenium omnium, etc., noticed, xxx, 276.
Tasmania, Flora of, *J. D. Hooker*, noticed, xxix, 440.
Tasmanian Flora, xxv, 292.
Three new ferns from California and Oregon, *D. C. Eaton*, xxii, 138.

BOTANY—
Thwaites, Enum. Plantarum Zeylanic., noticed, xxx, 276.
Tuberiform vegetable productions from China, xxvii, 438.
Tuckerman's Lichenes, &c., xxvi, 412.
Tulasne, xxii, 436.
Vilmorin's Notices sur l' Amelioration des Plantes, etc., noticed, xxvii, 440.
Walper's Annales, xxv, 112, xxvii, 439.
Annales Bot. Syst. by *Müller*, noticed, xxx, 276.
Weddell, xxii, 437.
on the Urticeæ, xxv, 109.
Wilson's Bryologia Britannica, xxi, 137.
Zollinger, on vegetation around the volcanic craters of Java, xxvi, 416.
Bouillet's Dict. Universel, noticed, xxi, 408.
Boundary Survey, noticed, xxvi, 95.
Bouvier's Astronomy, noticed, xxiv, 159.
Bowerbank, J. S., on the Spongiadæ, xxii, 415, 439, xxv, 114.
Bowlder from drift, of Amherst, xxii, 397.
Boyden, U. A., offers premium, xxix, 449.
Braconnot, H., death of, xxi, 118.
Bradley, F., shooting stars of Aug., 1859, xxviii, 446.
Bradley, F. H., discovery of new fossils in the Potsdam Sandstone, xxiv, 434.
on a new trilobite, xxx, 241.
Braun, A., Vegetable Individual, in its relation to species, xxi, 58.
Braunson's Handbook of Receipts, noticed, xxv, 449.
Brazil, explorations of, xxvi, 378.
Bread from fern root, xxiv, 281.
on fermented, *J. Dauglish*, xxx, 329.
Bresse, Cours de Mechanique, noticed, xxviii, 432.
Brewer, W. H., on the motions of certain winding plants, xxvii, 202.
Brewster, absorption of matter by surfaces of bodies, xxi, 296.
existence of Acari in mica, xxi, 296.
phenomena of decomposed glass, xxi, 297.
Bridges of iron, history of, xxiv, 258.
Brine in food, use of, xxii, 104.
British Association, xxii, 449.
address of president of, xxiv, 415.
Brodie, on graphite, xxix, 274.
Bromfield's Flora Vectensis, noticed, xxiii, 127.
Brougham on Isaac Newton, xxvii, 40.
Brown, Robert, life of, noticed, xxviii, 161, 290.
obituary of, and notices of works, xxvi, 279.
Brush, G. J., 8th Sup. to Dana's Min., xxix, 363.
Mineralogical notices, xxvi, 64.
on Antigorite, xxiv, 128.
on Boltonite, xxvii, 395.
on Chalcodite, xxv, 198.
on Dechenite, xxiv, 116.
on Parathorite, xxiv, 124.
Buckland, W., obituary of, xxii, 449.
Buckley, S. B., height of mountains of S. Carolina and Tennessee, xxvii, 286.
Buckton, on organic compounds containing metals, xxviii, 146.
Buff, H. S., on some compounds of Ethylene, xxiii, 176.
Building material, on testing, *J. Henry*, xxii, 30.
Bullet from a man's lung, xxvi, 192.
Bunsen, on blowpipe experiments, xxix, 114.
Bunsen and *Kirchhoff*, chemical analysis by observation of spectra, xxx, 415.
on the existence of new simple bodies, xxx, 410.
Butler, J. B., Philosophy of the Weather, by, noticed, xxi, 447.

C.

Cactaceæ of the U. States, *Engelmann*, xxiii, 128.
Cagniard Latour, biography of, xxix, 266.
death of, xxviii, 424.
Cahours, amids of monobasic acids, xxiv, 142.
Chimie, noticed, xxi, 261.
salicyl, new derivatives of, xxiv, 425.
Calcium, on new method of preparing, *Caron*, xxx, 123.
preparation of, xxvi, 401.
Calculating machine, Swedish, specimen tables, noticed, xxiv, 447.
California, Acad. Sci., Proceedings of, xxiii, 299.
climate of, *Bartlett*, xxii, 291.
for 1855, *H. Gibbons*, xxi, 305.
earthquakes in, *Trask*, xxii, 110, xxv, 146.
evaporation at Tulare Lakes, *W. P. Blake*, xxi, 365.
ferns, new, *D. C. Eaton*, xxii, 138.
Geological Reports on, noticed, xxvi, 122, 123.
survey of, xxx, 157, 424.
hydrography of San Francisco Bay, history of, *Kohl*, xxvi, 372.
mollusks of coast, *P. Carpenter*, xxii, 438.
mud volcanos of, xxvi, 288.
observations on, from *W. P. Blake's* Report, xxv, 317.
temperature of, xxv, 237.
tides of, *A. D. Bache*, xxi, 1.
Campbell, J. L., on aurora of 1859, xxix, 258.
Canadian Journal of Science, noticed, xxi, 450.
Canals, maritime, xxix, 271.
Canfield, C. A., on aurora of 1859, xxx, 347.
Cannon, rifled, xxix, 270.
Cantonite, *Pratt*, xxii, 449.
Caoutchouc, artificial, xxvii, 255.
tree producing, xxiii, 107.
vulcanized by means of sulphur and lime, *G. de Claubry*, xxx, 268.
Capillarity, xxiii, 445.
Carbon, crystallized, xxi, 418.
photographs, xxviii, 429.
protosulphid of, xxiv, 426.
Carbonates of lime and baryta, action with saline solutions, *Storer*, xxv, 41.
Carbonic acid, agency of, in past time, *von Fuchs*, xxiii, 229.

Carbonic acid, formic acid from, xxii, 403.
in mineral waters, *Storer*, xxv, 41.
influence of light on amount given off by animals, xxi, 146.
purification of, xxvi, 402.
Carbonic oxyd, effects of inhaling, on Chenot, xxi, 254.
Carboniferous limestones of the Mississippi valley, *J. Hall*, xxiii, 187.
rocks of Kentucky, xxiii, 274.
Caricography, *C. Dewey*, xxiv, 46, xxvii, 78, xxviii, 231, xxix, 346.
Carolines, on Ponape, one of the, *L. H. Gulick*, xxvi, 34.
Carpenter, *W. B.*, on Foraminifera, xxi, 429.
on the Microscope, noticed, xxiii, 149.
Carus, *J. V.*, on zoological catalogue, xxix, 129.
Carus's Icones Zootomicæ, noticed, xxvi, 141.
Casamajor, *P.*, a new mode of measuring crystals, xxiv, 251.
Caspary, *R.*, Consp. Syst. Hydrillearum, noticed, xxiv, 154.
Casseday, *S. A.*, and *Lyon*, on new species of Crinoidea, xxviii, 233.
Casseday, *S. A.*, on new species of Crinoidea, xxix, 68.
Caswell, *A.*, in Europe, xxx, 308.
Catalysis and contact actions, *Loewel*, xxx, 411.
Cauchy, A., death of, xxiv, 299, 408.
Cellulose, digested by sheep, xxix, 432.
solution of, in ammonio-oxyd of copper, xxix, 429.
transformation to sugar, xxviii, 430.
into parchment, xxviii, 431.
Centemodon, fossil reptile, xxii, 123.
Central Asia, Khanikoff's expedition in, xxix, 91.
Cerium, preparation of pure compounds of, xxv, 438.
Chalk, spongeous origin of siliceous bodies of, xxii, 415.
Chandler, *C. F.*, Miscellaneous Chemical Researches, noticed, xxiii, 149.
Chapman's Flora of the Southern U. S., notice of, *A. Gray*, xxx, 137.
Chappellsmith, *J.*, barometric action during a tornado, xxiii, 18.
Chatin, *A.*, on Vaslineria spiralis, noticed, xxiv, 155.
Chauvenet, *Wm.*, announcement of his manual of spherical astronomy, xxviii, 304.
professor of Math. in Univ. of Mo., xxix, 145.
Chemical News, The, *W. Crookes*, xxix, 282.
Notices, xxix, 113, 272, 423.
Technology of *Ronalds* and *Richardson*, noticed, xxii, 149.
Chemistry and Physics, abstracts of, xxviii, 144, 276, 432.
inverse substitutions in, xxiv, 423.
theory of substitutions in, xxiv, 410.
Chenot, obituary of, *Nicklès*, xxi, 255.
Chevreul, odors of perfumes, xxviii, 427.
Chicago Acad. Sci., constitution of, noticed, xxx, 159.
Chimborazo, ascent of, *Remy*, xxv, 141.
China, Yellow River, *Macgowan*, xxiv, 278.
Chinese poisons, xxvi, 225.
Chlorid of lime, new mode of testing, xxi, 405.
Chlorids at Vesuvius, xxiv, 273.
Chlorimetry, xxi, 405.
Chlorine, determination of by titrition, xxii, 404.
effect of, in coloring the flame of burning bodies, xxi, 262.
Chlorophyll, on, *Frémy*, xxx, 121.
Cholera, note on, xxi, 120.
Chromate of lead, preparation, for use in analyses, *Vohl*, xxvii, 419.
Chromium, blowpipe assay of, *Hilgard*, xxiv, 387.
crystallized, etc., xxiv, 141.
easy mode of preparing, xxviii, 438.
Chronometers, electric, xxii, 268.
Cinchonia, test for, *J. H. Bill*, xxvi, 108.
Clark, *A.*, new double stars, xxv, 129, xxix, 297.
new micrometer, xxix, 296.
telescope of, xxi, 158.
Clark, *H. J.*, notice of Agassiz on the Embryology of the Turtle, xxv, 342.
on an improved microscope, xxviii, 37.
on equivocal generation, xxviii, 154.
on the origin of vibrio, xxviii, 107.
Clark, *S. M.*, new compressor, &c., xxix, 448.
Clark, *T. E.*, inaugural dissertation of, noticed, xxiv, 447.
on Fichtelite, xxv, 164.
Classification, Agassiz on, reviewed, *J. D. Dana*, xxv, 321.
of Crustacea, *Dana*, xxii, 14, xxv, 335.
of mammals, *R. Owen*, xxv, 177.
of mammals, origin of, natural system, xxiv, 410.
Claus, on the platinum-metals, xxix, 425.
Clausius, *R.*, application of the mechanical theory of heat to the Steam Engine, xxii, 180, 364.
mechanical theory of heat, xxiii, 25.
Cleavage, slaty, xxiv, 150.
Climate, ancient, xxvi, 121.
as influenced by the distribution of land and water, *Hennessy*, xxvii, 316.
of California, *G. Bartlett*, xxii, 291.
laws regulating isothermal lines, *Hennessy*, xxvii, 328.
of San Francisco for 1855, *H. Gibbons*, xxi, 305.
tertiary, xxvi, 279.
Climatology of U. States, by *L. Blodget*, noticed, xxiv, 299.
reviewed, xxv, 235.
Clocks, electric, at city of Marseilles, xxi, 405.
Clouds, reflections by, in the Catskills, xxvi, 298.
Coal and its Topography, by *J. P. Lesley*, noticed, xxii, 302.
Breckenridge, xxv, 285.
cannel, *J. S. Newberry* on formation of, xxiii, 212.

Coal fields of the E. Indian Archipelago, xxiii, 157.
formations of N. America, *L. Lesquereux*, xxviii, 21, xxx, 63, 367.
formation of Saxony, *Geinitz* on, noticed, xxii, 454.
measures, on carbonate of iron in, *W. B. Rogers*, xxi, 339.
mineral, blowpipe assay of, *Chapman*, xxvi, 127.
mineral, in Peru, xxii, 274.
of Saxony, *Stein*, xxv, 283.
results of action of heat on bituminous, *A. A. Hayes*, xxvii, 294.
tar as a disinfectant, xxviii, 425.
Coan, T., eruption at Hawaii, xxii, 240.
eruption of Mauna Loa, xxi, 139, 237, xxvii, 410, xxix, 302.
on Kilauea, xxi, 100.
volcanic action on Hawaii, xxiii, 435.
volcano of Kilauea, xxv, 136.
Coast Survey, measurement of base in, xxv, 58.
notice of history of progress of, xxvii, 448.
Report, 1855, xxiv, 159.
for 1856, xxv, 315, 450.
for 1857, xxviii, 92.
Kohl's report on discoveries on the Pacific Coast, xxviii, 93.
review of results of, xxv, 75, 249.
Cobalt and nickel in N. Carolina, *Wurtz* on, xxvii, 24.
equivalent of, xxiv, 427, xxv, 438.
sesquioxyd and nitrite of potash, *Stromeyer*, xxi, 417.
Coffin, M., on aurora of 1859, xxx, 351.
Cold weather at Hanover, N. H., xxiv, 155.
Color, cause of, *J. Smith*, xxix, 276.
Colors subjective, experiments in, *O. N. Rood*, xxx, 182.
Colorado River, survey of, xxvi, 95.
Combustion, influence of solar light on, *John LeConte*, xxiv, 317.
Comet, Donati's, xxvii, 148.
dimensions of Donati's, *W. A. Norton*, xxix, 79, 383.
dynamical condition of the head of, *W. A. Norton*, xxvii, 86.
new, *Bruhns*, xxi, 438.
W. Mitchell, xxi, 438.
of 1855, elements of, *Rümker*, xxi, 439.
first of 1857, xxiii, 447.
2d, 3d and 4th of 1857, xxiv, 289.
new, 5th and 6th of 1857, xxv, 128.
1st and 2d of 1858, xxv, 447, 448.
3d of 1858, xxvi, 146.
4th of 1858, xxvi, 433.
5th of 1858, (Donati's), xxvi, 433.
7th of 1858, xxvi, 434.
Comets of 1858, 1859, xxviii, 153.
polarized light of, xxviii, 155.
comas and tails of, *Bartlett*, xxix, 62.
Compressed air, xxv, 96.
Compressor, for use with microscope, new, *S. M. Clark*, xxix, 448.
Conrad, T. A., fossil tertiary shells of California, collected by Blake, xxi, 268.
on a new Unio, xxi, 172.
Continents, on the relations of the coast-lines of, and the Arctic and Antarctic circles, xxiv, 433.
Owen, on outlines of, xxv, 130.
Conybeare, W. D., biography of, xxvii, 63.
Cook, G. H., subsidence of New Jersey coast, xxiv, 341.
Cooke, J. P., chemical problems and reactions, noticed, xxiv, 160.
Chemical Physics by, noticed, xxix, 450.
classification of elements, xxvii, 129.
memoir on compounds of zinc and antimony, noticed, xxx, 159.
variation of constitution in mineral species independent of phenomena of isomorphism, xxx, 194.
Cooper, J. G., on forest trees of N. Amer., xxix, 128.
Conservatory of Art and Science, Boston, xxvii, 451.
Copper, artificial crystallization of, *J. W. Mallet*, xxx, 253.
metallurgy, &c. of, by *Piggott*, noticed, xxv, 446.
quantitative determination of, *Mohr*, xxi, 417.
sulphate, preparation of, *H. Wurtz*, xxvi, 367.
Copper-wire for helices, substitute for, xxii, 267.
Coprolites, analyses of, xxiv, 111.
Coral, rate of growth of, *T. Lyman*, xxvi, 447.
reefs, agency of, in forming Florida, *J. LeConte*, xxiii, 46.
from N. Carolina, *Emmons*, xxii, 389.
Cordilleras on Gulf of St. Blas, xxviii, 93.
Cornette, A., on aurora of August, 1859, xxviii, 398.
Correction of error respecting Davy's discovery of alkaline metals, xxviii, 278.
Cosmogony of *T. A. Davies*, noticed, xxv, 108.
Cosmology, *Hickok's* Rational, reviewed, xxviii, 158.
Cretaceous fossils of Nebraska, xxiv, 275.
fossils of the carboniferous limestone of Indiana and Illinois, xxiv, 276.
of the U. States, *J. Hall*, xxiv, 72.
of New Jersey, (*note*), xxviii, 88.
corrected, xxviii, 151.
see *Geology*.
Crinoidea, nine new species, xxviii, 233.
Devonian, of Coblentz, reference to paper on, xxiv, 280.
Crockett, J. M., on aurora of 1859, xxx, 347.
Crocodiles, fossil of Nebraska, xxii, 120.
Crookes, W., new chemical journal, notice of, xxix, 282.
wax-paper photographic process, xxii, 159.
Crosson, D. C., on aurora of Aug., 1859, xxix, 96.
Crucibles, on care of platinum, *Erdmann*, xxx, 265.
Crustacea, classification of, *J. D. Dana*, xxii, 14, xxv, 335.
Cumæ, *Agassiz*, xxii, 285.
fresh water Entomostracan of South America, *Lubbock*, xxii, 289.

Crustacea, Isopod, from the Antarctic seas, *J. Eights*, xxii, 391.
reference to paper on Palæozoic bivalve Entomostracan, xxii, 285.
Stimpson's researches, noticed, xxvi, 141, 446.
Crystalline form not necessarily indicative of definite chemical composition, *J. P. Cooke*, xxx, 194.
of iodine, xxi, 412.
of phosphorus, xxi, 412.
of selenium, xxi, 411.
Crystallization, fact in, *Schroeder*, xxvii, 122.
of various salts, *Marignac* on, referred to, xxvi, 402.
Crystallogeny, facts in, xxiii, 114.
Crystal models in wood, on sale, xxvi, 360.
of glass, manufactured by *F. Thomas*, xxvi, 360.
Crystals, magnetic induction of, *Plücker*, xxv, 272.
mode of measuring, *P. Casamajor*, xxiv, 251.
Culgan, E. W., on aurora of Aug., 1859, xxix, 97.
Curare in treatment of tetanus, xxix, 269.
Currents, northern oceanic, xxiv, 237.
oceanic, *E. B. Hunt*, xxvii, 169.
J. D. Dana, xxvi, 231.
tidal, of N. York bay, *Bache*, xxvi, 334.
Curtis's Geol. and Nat. Hist. Survey of N. Carolina, Pt. III., noticed, xxx, 275.
Curves, in forms of flowers, &c., xxiv, 444.
Cyclopedia, New American, notice of, xxix, 303, 451.

D.

Dalton, J., Memoir on, noticed, xxiii, 449.
Dana, J. D., Arctic Explorations, of Dr. Kane, review of, xxiv, 235.
cephalization, a fundamental and potential element in classification, xxv, 213, 336.
Chondrodite, on crystals of, xxi, 198.
Crustacea, classification of, xxii, 14.
drift period, note on the, xxiv, 432.
Europe, departure for, xxviii, 450.
return from, xxx, 308.
fossils, note on new, in the Potsdam Sandstone, xxiv, 434.
generation, on spontaneous, xxvii, 406.
geological history, on American, xxii, 305.
plan of development in American, xxii, 335.
Geological Report of, proposed reprint of, xxii, 452.
iron, note on Rammelsberg on titanic, xxvii, 423.
Leucophane, Fowlerite, Pectolite, xxi, 205, 208.
Marcou's Geology, xxvii, 137.
of North America, xxvi, 323.
strictures, notice of, xxviii, 153.
Mauna Loa, eruption of, xxvii, 410.
Dana, J. D., Mauna Loa, volcanic action at, xxi, 241.
Mineralogical Supplement, second, xxi, 193.
third, xxii, 246.
fourth, xxiv, 107.
fifth, xxv, 396.
sixth, xxvi, 345.
seventh, xxviii, 128.
eighth, by *Brush*, xxix, 363.
Nat. Hist. of U. S., review of Agassiz's contributions to, xxv, 202, 321.
oceans, note on currents of the, xxvi, 231.
parthenogenesis, xxiv, 399.
prehnite and chrysolite isomorphous, xxvi, 361.
ripidolite, on casts of, xxviii, 250.
sandstone of Conn. river, age of, xxiv, 427.
silicates, classification of the mineral hydrous, xxvi, 361.
Species, errata to paper on, xxvi, 146.
thoughts on, xxiv, 305.
Zoophytes, Synopsis of Report on, xxvii, 304.
Daniel's Geological Report, noticed, xxv, 275.
Darlington's American Weeds and Useful Plants, noticed, xxvii, 437.
notice of Gray's Manual of Botany, xxii, 437.
Darwin, C., Origin of Species by Natural Selection, notice of, xxix, 146.
review of, xxix, 153.
discussion between two readers of, *Gray* and *Treadwell*, xxx, 226.
review of, *A. Gray*, xxix, 153.
Agassiz, xxx, 142.
Parsons, xxx, 1.
theology of, xxx, 226.
Daubeny, C., Lectures on Roman husbandry of, noticed, xxv, 302.
Daubrée, artificial formation of minerals, xxi, 194.
Dauglish, J., on fermented bread, xxx, 329.
Davies, Cosmogony of, noticed, xxv, 108.
Davis, J. B., on measurements of the human races, xxix, 329.
Davis, N. K., meteor of July 8th, 1860, xxiii, 138.
Davis's Theoria Motus of Gauss, noticed, xxvi, 147.
Davison's pressure gauge, xxix, 203.
Davy, Sir H., discovery of alkaline metals, error concerning, corrected, xxviii, 278.
Dawes, W. R., descrip. of an equatorial, xxix, 421.
on Saturn, xxi, 158.
Dawson, J. W., Archaia, xxix, 146.
on Devonian trees, xxiv, 280.
post-pliocene of Montreal, xxv, 275.
post-tertiary of the St. Lawrence valley, xxvii, 434.
Dawson, S. J., his Lake Superior report, noticed, xxviii, 151.
Dawson, W., on aurora of 1859, xxx, 345.
Dayman's Atlantic soundings, xxvi, 219.
Dead Sea, *H. Poole*, xxiii, 290.
De Candolle's Geographical Botany, noticed, xxii, 429.

DeCandolle's Prodromus, noticed, xxiii, 126.
De Claussen, on plants furnishing fibre for paper, and on artificial gutta percha, &c., xxi, 290.
Declinometer observations at Girard College, discussion of, *A. D. Bache*, xxix, 26.
Deep Sea soundings, new apparatus for, xxviii, 1.
importance of, for a submarine telegraph, xxviii, 51.
in sea of Kamtschatka, *J. W. Bailey*, xxi, 284.
Delaney, E. M. J., on aurora of 1859, xxx, 349.
Dennis, W. C., on aurora of 1859, xxx, 361.
Densities of vapors, calculation of, *Kopp*, xxiv, 422.
Density of the earth, mean, xxv, 443.
Depth of Mediterranean, xxv, 310.
De Saussure's Mexican Crustacea, xxvii, 445.
Descloizeaux, A., extracts from a paper by, on refraction in minerals, xxv, 396.
Desor on fossil Echinids, noticed, xxvii, 276.
Despretz, discussion on simple bodies with *Dumas*, xxviii, 121.
Deville, on methods of preparing the elements, xxiv, 141.
on producing high heat, xxii, 105.
on silicium and siliciurets, xxiv, 423.
Deville, St. Claire, work on manufacture of aluminum, xxviii, 126, 160.
Devonian trees, *J. W. Dawson*, xxiv, 280.
Dewey, C., Caricography, xxiv, 46, xxvii, 78, xxviii, 231, xxix, 346.
notice of Emmons's Report on North Carolina geology, xxiv, 427.
on aurora of 1859, xxix, 253.
Lake Ontario, varying level of, xxvii, 398.
Neo-macropia, xxii, 301.
Diamagnetic bodies, disposition of force in, *Tyndall*, xxiv, 264.
Diamond, false, xxvi, 397.
Kohinoor, xxii, 278.
Diapason, natural, xxvi, 97.
Diatomaceæ, see *Infusoria*.
Diatoms, measurement of striæ of, xxvii, 249.
Dichromatism in solutions, *Gladstone*, xxii, 412.
Didymium, optical test, *Gladstone*, xxv, 100.
Dinornis, new species of, *Owen*, xxii, 138.
Disinfectants, on various, *F. H. Storer*, xxx, 125.
Disinfection and dressing of wounds, xxviii, 425.
Dolomites, facts in the history of, xxviii, 365.
Donati's Comet, (5th of 1858), xxvi, 433.
dimensions of, *Norton*, xxix, 79.
D'Orbigny, A., biography of, xxvii, 71.
Dove, H. W., rain in the temperate zone, xxi, 112.
experiment in acoustics, xxvii, 121.
Dragon-tree of Orotava, xxii, 135.
Draper, J. W., on flame, xxvi, 268.
Drift and Post-tertiary in Northern America, xxi, 325, 338.
Drift phenomena, cause of, *J. D. Dana*, xxii, 325.
Dromedary imported into S. A., xxviii, 431.
Dudley Observatory, xxii, 442.
meridian instruments of, *B. A. Gould*, xxiii, 404.
Dufrenoy, A., death of, xxiv, 160.
Dumas, equivalents of elements, xxv, 267, xxvi, 259.
on the relations of the elements, xxvii, 252.
on spontaneous generation, xxvii, 407.
Dunglison's Medical Lexicon, noticed, xxv, 302.
Durand, E., Biography of Michaux, xxiv, 161.
Dutch liquid, xxiv, 424.
Dyeing, theory of, *Bolley*, xxix, 430.
Dynamoscopy, xxvii, 254.

E.

Ear, musical, how detected, xxvi, 97.
Earl, G. W., submarine plateaus of the East Indies, xxvi, 442.
Earth, chemistry of primeval, *Hunt*, xxv, 102.
density of, xxiv, 158, xxv, 443.
determined by pendulum experiments, *Airy*, xxi, 359.
direction of gravity, at surface of, *Hennessy*, xxv, 106.
figure of, xxiv, 417.
figure of, review of Schubert's essay on, by *Mädler*, xxx, 46.
origin of, observations on, *J. D. Dana*, xxii, 305, 335.
physical structure of, *Hennessy*, xxii, 416.
temperature, at depths, xxv, 443.
Earthquake in Japan, xxi, 144.
catalogue, etc., by *Mallet*, noticed, xxvii, 437.
in California, *W. P. Blake*, xxi, 449.
Trask, xxv, 146.
in Connecticut, xxvi, 298.
in Italy, xxv, 280.
in New Zealand, xxii, 128.
in western N. York, *West*, xxvi, 177.
of 1851 in Chile, *J. M. Gilliss*, xxi, 388.
of Simoda, conclusions from, xxv, 83.
at St. Louis, Buffalo, etc., xxv, 136.
waves, felt on W. coast of U. S., *A. D. Bache*, xxi, 37.
Earthquakes at Hilo, Hawaii, *S. C. Lyman*, xxvii, 264.
in California, *J. B. Trask*, xxii, 110, xxiii, 341, xxvi, 296, xxviii, 447.
of Southern Italy, *Lacaita*, xxviii, 210.
East Indies, submarine plateaus of, *Earl*, xxvi, 442.
Eaton, D. C., ferns of Cuba, xxvii, 197.
three new ferns of California, xxii, 138.
Ebelmen, works of, noticed, xxi, 124.
Eclipse of sun, total, in 1858, xxvi, 434.

Eclipse of the sun, total, in 1860, *Faye*, xxix, 136.
American expedition to view, xxx, 157, 281, 285.
as observed in Spain, xxx, 288, 309.
Edwards, Milne, on spontaneous generation, xxvii, 401.
Eggs, unusual modes of gestation, *Wyman*, xxvii, 5.
Eights, J., Isopod Crustacean from the Antarctic, xxii, 391.
Ehrenberg's Microgeology, noticed, xxiv, 434.
origin of Greensand, xxii, 282.
Eisenlohr, wave length of most refrangible rays, xxiii, 116.
Elderhorst's Blowpipe Manual, noticed, xxii, 303.
Electric clocks, Marseilles, xxi, 405.
conduction, *Faraday*, xxi, 368.
illumination, xxiii, 440, xxiv, 411.
light in medicine, xxix, 419.
telegraph across the Atlantic, xxvi, 285, 424.
across the British Channel, xxiv, 259.
across the Mediterranean, xxi, 257.
dangers from wire, xxvi, 396.
in the determination of longitude, xxv, 79.
Electrical conducting power of metals, xxvii, 422.
conduction, increase in the resistance to, depending on temperature, xxvii, 260.
currents in animals, xxvi, 423.
discharges in rarefied air, xxvi, 263.
discharges, phosphorescence in, *Gassiot*, xxvii, 133.
induced when taken in aqueous vapor, *Gassiot*, xxvii, 134.
excitation, on a new source of, *E. Foote*, xxiv, 386.
phenomena in houses, *Loomis*, xxvi, 58.
Electricity applied in local anesthesis in tooth-drawing, xxvi, 439.
atmospheric, xxii, 268.
Jobard's theory of, xxiv, 411.
chemical effects of, *Plücker*, xxvii, 261.
De la Rive on, noticed, xxvi, 97.
Dellman's method of observing atmospheric, xxiii, 288.
Medical, of *W. F. Channing*, noticed, xxvii, 156.
Electrodynamic measurements, xxiii, 430.
Electrolysis of sulphuric acid, xxviii, 281.
Electrolytic investigations, *Magnus*, xxv, 98.
Electro-magnetism, substitute for copper wire of helices, xxii, 267.
Electro-magnets and magnetic adhesion, *J. Nicklès*, xxx, 413.
Electro-physiology, *Matteucci*, xxii, 270.
Electrotype processes, *Moigno*, xxv, 144.
Element, on a new metallic, *Von Kobell*, xxx, 123.
Elements, *Dumas* on, xxvi, 259, xxvii, 252.
classification of, by *J. P. Cooke*, noticed by *Sir John Herschel*, xxvii, 128.
Elements, on some general methods of preparing, *Deville*, xxiv, 141.
Elephant, American, in Mexico, xxv, 283.
fossil, of Great Britain, xxv, 274.
Eleutherocrinus, *Yandell* and *Shumard*, xxii, 121.
Elevation of Alleghany Mts., xxiii, 62.
Elevations of Dead Sea, etc., xxiii, 146.
over Arctic America, *Isbister*, xxi, 331.
of Mountains, remark on Elie de Beaumont's theory, *J. D. Dana*, xxii, 346.
see *Height*.
Elie de Beaumont, on fold in strata of Petit-Cœur, xxix, 121.
Elliot Soc. Nat. Hist., Proceedings of, xxii, 152, xxiii, 304.
Ellsworth, H. L., bequest of, to Yale College, xxvii, 451.
Embryology of the Turtle, *Agassiz*, xxv, 342.
Emmons, E., geological report of N. Carolina, by, noticed, xxiv, 427.
Emory, W. H., report of, on Mexican Boundary, noticed, xxvi, 446.
Empiricism, application of physical sciences to medicine, xxx, 412.
Engelmann, G., Mexican cactaceæ, xxviii, 291.
new dicœcious grasses, xxviii, 439.
on arrangement of species of Cuscuta, xxix, 128.
on elevation of St. Louis, noticed, xxx, 394.
Entomostraca, see *Crustacea*.
Equatorial, description of, *W. R. Dawes*, xxix, 421.
Equivalent numbers, numerical relations of, in elementary bodies, *M. C. Lea*, xxix, 98, 349, xxx, 399.
of cadmium, xxv, 438.
of cobalt, xxv, 438.
of lithium, xxviii, 349.
manganese, xxv, 438, xxviii, 437.
of nickel, xxv, 438, xxviii, 438.
of tellurium, xxv, 438.
see *Atomic Weights*.
Equivalents of the elements, *Dumas*, xxv, 267, xxvi, 259, xxvii, 252.
on numerical relation between, xxvii, 128, densities and, *Playfair*, xxx, 420.
Equivocal generation, xxviii, 154.
Erdmann, notice of, xxvii, 119.
on care of platinum crucibles, xxx, 265.
Eruption of Mt. Hood, Oregon, xxviii, 448.
Mauna Loa, xxviii, 66, 284.
Espy, J. P., death of, xxix, 304.
Essex Institute, Proceedings of, xxii, 152.
Ether and its homologues, new method for, xxii, 107.
Ethnography of Rocky Mountain region, *Mollhausen's* work on in progress, xxv, 319.
Ethylamine, on production of, *M. C. Lea*, xxx, 401.
Ethylene, compounds of, *H. S. Buff*, xxiii, 176.
Swartz, on oxyd of, xxviii, 144.
Euphotide, *T. S. Hunt*, xxv, 437, xxvii, 336.

Europe, information to students visiting, xxii, 146.
Evans, E. W., on meteorite of May 1, 1860, xxx, 106, 296.
Evans, John, fossil plants from Vancouver's Island, &c., xxviii, 85.
Ewbank, T., Thoughts on matter and force, noticed, xxvii, 301.
Expansion of liquids above their boiling points, *Thilorier*, xxvii, 261.
Expedition, Southern African, by *F. de Costa Leal*, xxvii, 382.
to the Atrato, New Granada, xxvi, 370.
Exploration of Western Br. Amer., notice of, xxx, 396.
Eye, on rendering visible circulation in, *O. N. Rood*, xxx, 264, 385.
Eyes, color blindness in, *Tyndall*, xxii, 143.

F.

Falconer, on Mastodon and Elephants, xxv, 274.
ossiferous caves near Palmero, xxviii, 284.
Faraday, magnetic philosophy, xxi, 262.
observations on divided gold, xxiv, 269.
on electric conduction, xxi, 368.
researches in physics and chemistry, xxviii, 147.
Favre, on triassic system in Savoy, &c., xxix, 119.
Faye, on solar eclipse, xxix, 136.
Faye's Cosmographie, noticed, xxi, 124.
Fecula of the Horse-chestnut, xxii, 264.
Feldspars, origin of, *T. S. Hunt*, xxv, 435.
Fendler, A., on aurora of 1859, xxx, 346, 355.
Fermentation, *Pasteur*, xxix, 411.
Fern root, bread from, xxiv, 281.
Fertilizers, general law of displacement among saline, xxviii, 77.
Field, fossil foot-marks, xxix, 361.
Filters, of gun-cotton, *Boettger*, xxx, 268.
Filtration through sand, *Witt*, xxiv, 157.
Finley, H. J., on aurora of 1859, xxx, 352.
Fish-breeding, salmon at Stormont, xxi, 292.
Fish scales, of striped Bass, analysis of, *J. Greene*, xxvi, 447.
Fishes, of China, work on, referred to, xxiv, 446.
fossil of California, *Agassiz*, xxi, 272.
from Nebraska, xxii, 118.
of Pa., *I. Lea*, xxii, 123.
J. Leidy, xxii, 453.
Fitch on noxious insects, noticed, xxiii, 150.
Flame, *J. W. Draper*, xxvi, 268.
effects on musical sounds of, *Le Conte*, xxv, 62.
sonorous, *W. B. Rogers*, xxvi, 1, 240.
Flesh, on preservation of, *Verdeil*, xxx, 269.
Fleury, Des races qui se partagent l'Europe, noticed, xxix, 152.
Flora of Northern U. States, Statistics, *A. Gray*, xxiii, 62, 369.
Florida, formation of, *J. Le Conte*, xxiii, 46.
Fluorescence, new case of, *J. W. Mallet*, xxiii, 434.
Fluorescence of Oleum Neroli, xxv, 300.
produced by the Aurora, xxvi, 271.
Fluorids, researches on, xxii, 405.
Fluorine, *J. Nicklès*, xxiv, 395.
in the blood, *Nicklès*, xxiii, 101.
Fluosilicates and fluostannates, xxvi, 271.
Fonssagrive, electric light for medical use, xxix, 419.
Foote, E., a new source of electrical excitation, xxiv, 386.
heat in sun's rays, xxii, 377.
Eunice, circumstances affecting heat in sun's rays, xxii, 382.
Foot-marks, fossil, *R. Field*, xxix, 361.
Footmark, new, from Turner's falls, *E. Hitchcock*, xxi, 97.
Footprints in Pennsylvania, *J. Wyman*, xxi, 444.
Lea, xxii, 123.
Foraminifera, *W. B. Carpenter*, noticed, xxi, 429.
J. G. Jeffreys, xxi, 432.
Foraminiferous origin of Greensand, *Bailey*, xxii, 280.
Forbes, D., color to flame from chlorine, xxi, 262.
Force, conservation of, *J. Henry*, xxx, 32.
correlation and conservation of, by *Jos. Le Conte*, xxviii, 305.
Forces, on the interaction of natural, *Helmholtz*, xxiv, 189.
T. Lyman, xxix, 185.
Forest, modern submerged, Nova Scotia, xxi, 440.
Forests and Peat bogs of Bohemia, xxi, 442.
Formic acid from carbonic acid, xxii, 403.
Forshey, C. G., on aurora of 1859, xxix, 263.
Fossil—
American elephant in Mexico, xxv, 283.
Archimedes, *J. Hall*, xxiii, 203.
batrachians, *Wyman*, xxv, 158.
bivalves, proportion of, in different ages, xxiv, 150.
of Canada West, xxviii, 152.
coal plants, Bohemia, xxii, 454.
Kimball, xxv, 151.
coral, note on Palæotrochis of *Emmons*, xxiii, 278.
corals (Silurian) from N. Carolina, *Emmons*, xxii, 389.
crinoids of N. York, *J. Hall*, xxv, 277.
crustacea (Pterygotus) of Scotland, *Salter*, xxii, 417.
Devonian fishes of Ohio, *Newberry*, xxiv, 147.
Dichodon, of Upper Eocene, xxii, 420.
Eifel Echinoderms, xxv, 151.
elephants and mastodon, *Falconer*, xxv, 274.
elk in Switzerland with remains of art, xxv, 279.
fish, *E. Hitchcock*, xxi, 96.
fishes and mammalia, notice of a paper by *J. Leidy* on, xxii, 453.
flora, Cretaceous, of Kansas, *Meek* and *Hayden*, xxvii, 31, 219.
footmark, from Turner's Falls, *E. Hitchcock*, xxi, 97.
footprints in Pennsylvania, *Wyman*, xxi, 444.

Fossil—
ichthyodorulites, xxi, 422.
mammal of the Stonesfield slate, xxii, 419.
of Nebraska, *Leidy*, xxi, 422.
mastodon of S. America, reference to, *J. Wyman*, xxi, 147.
palæozoic star-fishes, *Salter*, xxii, 415.
Plants of N. Am., note on, xxix, 434.
from Washington Ter., xxviii, 85.
of Pennsylvania, &c., *Lesquereux*, xxv, 286, 447.
Recent quadrupeds, in the U. S., xxv, 442.
Reptiles and fishes from Nebraska, *Leidy*, xxii, 118.
Reptiles of Pennsylvania, *Lea*, xxii, 122.
Shells from Cretaceous rocks of Nebraska, *F. B. Meek* and *F. V. Hayden*, xxix, 33.
new from Nebraska, xxii, 423.
tertiary shells, fishes, &c., of California, collected by *W. P. Blake*, xxi, 268.
Trilobites near Boston, *Rogers*, xxii, 296.
Fossils—
of Anticosti, xxv, 445.
of bone-beds of the Upper Ludlow, *Murchison*, xxii, 418.
Calceola in Tennessee, *J. M. Safford*, xxix, 248.
carboniferous, new, *Stevens*, xxv, 258.
of Indiana, &c., *Hall*, xxiv, 276.
Cretaceous, from Vancouver's Id., xxv, 443.
of Nebraska, etc., *Hall*, xxiv, 72, 275.
crinoids, description of nine new subcarboniferous, xxviii, 233.
Lyon and *Casseday*, xxix, 68.
Devonian in Wisconsin, *Lapham*, xxix, 145.
Eocene of the Tyrol, *Ettingshausen*, xxvii, 433.
Foraminifera, distribution of, *D'Orbigny*, xxvii, 74.
at Gay Head, Mass, *W. Stimpson*, xxix, 145.
of Guadalupe Mts., New Mexico, xxv, 442.
genus Tetradium, species of, *J. M. Safford*, xxii, 236.
of Longmynd Rocks, reference to, xxiii, 299.
Miocene, of Styria, *Ettingshausen*, xxvii, 434.
of Tuscany, xxvii, 434.
of Vienna, *Ettingshausen*, xxvii, 432.
of Missouri and Kansas, *Shumard* and *Swallow* on, noticed, xxv, 447.
of Nebraska, *Meek*, *Hayden* and *Leidy*, xxv, 439.
of N. Carolina, by *Emmons*, xxiv, 427.
of S. Carolina, by *Tuomey* and *Holmes*, noticed, xxii, 453, xxiv, 159, 447.
palæozoic, new, *J. Hall*, xxv, 108.
J. H. McChesney, xxix, 285.
Permian, of Kansas, xxv, 305*, 442, 451.
Post-pliocene of Montreal, *Dawson*, xxv, 275.
Fossils—
Post-pliocene, of S. C., work on, by *F. S. Holmes*, noticed, xxvii, 156, xxix, 288.
of sandstone of Conn. R., *E. Hitchcock, Jr.*, xxii, 239.
saurian, new Cretaceous, in New Jersey, xxvii, 266.
Tertiary and post-tertiary, *Lesquereux*, xxvii, 359.
of Texas and New Mexico, *B. F. Shumard*, xxix, 125.
of Vancouver's Island, xxiv, 276.
vertebrate, of N. Carolina, *J. Leidy*, xxiii, 271.
Vienna publications, notices of, xxv, 287.
See further *Geology* and *Zoology*.
Foucault, experiment with gyroscope, on heat, xxi, 119.
Fowler, J. W., on a flint implement found in gravel, xxviii, 287.
Frambes, O. S., on aurora of 1859, xxx, 347.
Franklin, Lady, gold medal awarded to, xxx, 159.
Sir John, fate of, xxviii, 423.
Fraunhofer's lines, *Kirchhoff's* investigation of, xxix, 423.
Fremy, on ammonia-chromium bases, xxviii, 276.
Fuchs, biography of, xxiii, 95, 225.
Fuel, on combustion of wet, *B. Silliman, Jr.*, xxx, 243.
Furnace crystalline products, xxii, 248, xxvi, 360.
heat, on producing intense, *Deville*, xxii, 105.
Fusible metal, new, *B. Wood*, xxx, 271.

G.

Galileo, tribute to, *E. Everett*, xxii, 442.
Gallery of portraits of scientific men, issued at Vienna, xxvi, 300.
Gallic acid, derivatives of, xxv, 101.
Galvanic apparatus, Ruhmkorff's, modified by *Ritchie*, xxiv, 45, 143.
Galvanic Battery, with a constant current, xxiii, 441.
new kind of, xxii, 102.
on a self-sustaining, *G. Mathiot*, xxi, 43.
theory of, *De la Rive*, xxiii, 113.
with triple contact, xxiii, 442.
Gantt, W, H., on aurora of 1859, xxx, 359.
Gar pikes, remarks on young, xxii, 440.
Gardiner, R. H., on aurora of 1859, xxx, 350.
Garrison, O. E., on aurora of 1859, xxx, 349.
Gas, illuminating power, *Aikin*, xxvii, 82.
illuminating, price, &c. at Paris, xxi, 406.
Gauss's Theoria Motus, *Davis's* edition, noticed, xxvi, 147.
Geinitz on Coal formation of Saxony, noticed, xxii, 454.
Gemmation, *Huxley's* lecture on, xxviii, 206.
Generation, on equivocal, xxviii, 154.
Genth, F. A., on Ammonia-cobalt bases, xxiii, 234, 319, xxiv, 86.

Genth, F. A., Contributions to Mineralogy, xxiii, 415, xxviii, 246.
observations on the occurrence of gold, xxviii, 253.
reply to C. U. Shepard, xxiv, 133.
on Whitneyite, xxvii, 400.
Genther, Dr. Anton, on electrolysis of sulphuric acid, xxviii, 281.
GEOGRAPHICAL—
Africa, Behm's review of recent discov. in, xxvi, 373.
coast of, soundings on, xxv, 310.
exploration's in, Baikie's, xxv, 308, xxvi, 374, xxviii, 95, xxix, 89.
Barth's, xxv, 306.
Behm's review of, noticed, xxvi, 373.
Burton's, xxv, 309, xxvi, 373, xxvii, 234, xxviii, 411.
Costa Leal's, xxvii, 382.
Escayrac's, xxv, 309.
Heuglin's Abyss., xxv, 309.
Hirsch's Alger., xxv, 309.
Knoblecher's, xxv, 309.
Krafft's, xxvi, 223.
Krapf's, xxix, 240.
Livingstone's, xxv, 306, xxvii, 236, xxix, 237.
Roscher's, xxvii, 234, xxviii, 94.
Speke's, xxviii, 411, xxix, 86, 242.
inland seas of, xxii, 117, xxviii, 411, xxix, 86.
Nile, sources of, xxviii, 411, xxix, 86.
Sahara, Arenz's general view of, xxvi, 374.
America, North, Alleghany Syst. Guyot's measurements, xxiv, 277, xxx, 391.
Sandoz's map, xxx, 392.
Blakiston, explorations in Rocky Mts., xxviii, 320.
California, Blake's Rept. on, noticed, xxv, 317.
Canada, Devine's Maps of, xxx, 398.
Coast Survey, U. S. Repts., noticed, 1856, xxv, 315, 1857, xxviii, 92.
Colorado River, Ives's Explor., xxvi, 95.
Cordilleras, Wagner's visit to, xxviii, 93.
discovery of, Kunstmann, &c. Hist. of, xxviii, 419.
Dawson's Saskatchewan, xxx, 218, 397.
Emory's Mexican Boundary, xxvi, 95.
Gladman's British Possessions, xxx, 218.
Guyot's Alleghany, xxx, 391.
Hind's Saskatchewan, xxx, 397.
Humphreys's Rept. on U. S., Expl., xxvii, 381.
Ives's Colorado, xxvi, 95.
Möllhausen's Rocky Mts., xxvi, 224.
Napier's Brit. Possess., xxx, 218.
Pacific R. Road, noticed, xxv, 317, xxvi, 92, xxvii, 380.
Palisser's Rocky Mts., xxviii, 341.
GEOGRAPHICAL—
America, North, explorations, Wagner's Cordilleras, xxviii, 93.
Warren's Dacotah and Nebraska, xxvii, 378.
Humphreys's U. S. Explor. and Surveys, xxvii, 381.
Kiepert's Map of Tropical America, xxvii, 57.
Mississippi, velocity of, Engelmann, xxx, 396.
Red River of the North, Canadian Surv., xxx, 218.
Rocky Mts. general view of, xxix, 419.
St. Louis, altitude of, Engelmann, xxx, 394.
San Francisco Bay, Kohl's Hydrog. of, xxvi, 372.
Saskatchewan River, surveys of, xxx, 218, 397.
Warren's Nebraska and Dacotah Rept., xxvii, 378.
general view of Rocky Mts., xxix, 419.
Map of Pacific R. Road Surv., xxvii, 380.
Memoir to accompany map, xxviii, 418.
America, South.
Atrato and Truando Rivers, surveys of, xxvi, 370, xxvii, 368.
Bolivia, Ondarza's Map of, xxviii, 95.
Brazil, Govt. Explor. of, xxvi, 378.
Choco, Isthmus of, *A. Schott* on, xxvii, 368.
Codazzi's Map of Isthmus of Darien, and of Choco, xxvii, 57.
Craven's Atrato expedition, xxvi, 370.
Holmes's and Campbell's Exped. in Venezuela, xxvi, 94.
Kiepert's Map of Tropical America, xxvii, 57.
Michler's Atrato Explor., xxvi, 370.
New Granada, new divisions of, xxvi, 94.
Ondarza's Map of Bolivia, xxviii, 95.
Page's La Plata charts, xxvi, 372.
Schott, A., Physiog. of Choco Isthmus, xxvii, 368.
Valparaiso, new Determ. of Longit. of, xxvi, 378.
Amer. Geog. and Stat. Soc. Jour., noticed, xxix, 402, xxx, 217.
Asia, Amoor river, recent surv. of, xxv, 313, xxvii, 53, xxix, 402.
explorations in, Barth's Asia Minor, xxx, 398.
Collins's Amoor, xxv, 314, xxvii, 53.
Khanikoff's Khorassan, xxix, 91, 232, 409.
Kotschey's Cilician Taurus, xxvi, 377.
Lentz's Khorassan, xxix, 232.
Maximowitsch's Amoor, xxvii, 57.
Permikin's Amoor, xxvii, 56.
Peschtschuroff's Amoor, xxvii, 56.
Radde's Amoor, xxix, 402.

GEOGRAPHICAL—
Asia, explorations in, Schlagintweit's N. India, xxv, 310, xxvi, 378, xxix, 235, 245, xxx, 217.
Schrenk's Amoor, xxvii, 56.
Schwartz's East Siberian, xxvii, 56.
Semenow's Centr. Asia, xxvii, 228.
Waugh's Trigon. Surv. India, xxvii, 233.
Himalayan Peaks, height of, xxvii, 62, 231.
Salt Lakes, xxix, 245.
Indian Trigon. Surv., xxvii, 233.
researches of Schlagintweit, xxv, 310, xxvi, 378, xxix, 235, 245, xxx, 217.
Schlagintweit's Ethnog. Coll. in India, xxix, 235.
Tengri-Tagh, glaciers of, Semenow on, xxvii, 231.
Tobler's Jerusalem Planography, noticed, xxvi, 377.
Australia, explorations in, Babbage's, xxviii, 89.
Freeling's, xxvi, 94, xxvii, 60.
Goyder's, xxvii, 60.
Gregory's, xxvii, 237.
Hack's, xxvii, 61, xxviii, 89.
Leichhardt's, xxvii, 237.
Stuart's, xxviii, 89.
Swinden's, xxvii, 62.
Torren's Lake, height of, xxvii, 240.
Basle Miss. Soc. Atlas, noticed, xxvi, 377.
botany of U. S., relations to other countries, *A. Gray*, xxiii, 62, 369.
DeCandolle, on geog. of plants, noticed, xxii, 429.
Dieterici's estimate of popul. of world, xxvii, 381.
distribution, as bearing on the probable origin of species in the Azores, Madeira and the Canaries, *O. Heer*, xxiii, 130.
of plants, DeCandolle on, noticed, xxii, 429.
of species, *Owen*, xxvi, 427.
Dove, temp. of air and sea, xxvi, 91.
Europe, Hofmann's exped. to Urals, xxv, 314.
Russian measurement of arc of meridian, xxv, 315.
Franklin, Sir John, fate of, ascertained, xxviii, 423.
Gilman, D. C., see *Notices*.
Guyot's Phys. Tables, noticed, xxvii, 62, 149.
Haskins, R. W., on open Polar Sea, xxv, 84.
Hayes, I. I., on passage to N. pole, xxv, 384.
Hayes's Arctic journey, proposed, xxix, 401.
sailed July, 1860, xxx, 159.
Kane's Arctic explor., xxvi, 373.
Kiepert's Hand Atlas, xxx, 396.
Kohl, J. G., ocean routes between Eng. and N. Am., abstract of, xxvi, 86.
Pacific coast, hist. of discov. in, xxviii, 92.
GEOGRAPHICAL—
Kohl, J. G., San Francisco bay, hydrog. of, xxvi, 372.
Kunstmann, &c., discov. of America, xxviii, 419.
McClintock, on fate of Sir J. Franklin, xxviii, 423.
Notices, I—XIV, *D. C. Gilman*, xxv, 305, xxvi, 86, 219, 370, xxvii, 53, 227, 368, xxviii, 89, 411, xxix, 82, 221, 400, xxx, 217, 391.
Ocean, Atlantic, soundings on telegraphic plateau, Petermann on, xxvi, 219.
W. P. Trowbridge on, xxvi, 157, 386, xxviii, 51.
early commerc. routes, Kohl on, xxvi, 86.
Petermann's Geog. Mittheilungen, noticed, xxv, 305.
Population of world, Dieterici's estimate of, xxvii, 381.
Rawlinson's Herodotus, noticed, xxvi, 224.
Ritter, Karl, biog. sketch of, by Kramer, xxix, 221.
Roy. Geog. Soc. Jour., vol. 28, noticed, xxix, 246.
Schlagintweit, A., death of, xxvi, 378, xxix, 236.
Schott, A., on Isthmus of Choco, xxvii, 368.
Sillacius, (Nic.), reprint of tract of, on second voyage of Columbus, xxix, 400.
Spitzbergen, voyage to, 1613, xxx, 393.
GEOLOGICAL—
changes in the coast of South Carolina, xxviii, 354.
climate, xxvi, 121, 279.
distribution and extinction of Species, *Owen*, xxvi, 427, 431.
excursion, xxviii, 152.
explorations in N. Mexico, Texas, and Utah, *Newberry*, xxix, 144.
explorations of *Newberry* in N. Mexico, xxviii, 298.
history of America, *J. D. Dana*, xxii, 305, 335.
map of J. Marcou, reviewed, *W. P. Blake*, xxii, 383.
note on Dead Sea, *Poole*, xxiii, 290.
report of J. D. Dana, proposed reprint of, xxii, 452.
on Alabama, noticed, xxvii, 436.
on California and Oregon, *Dr. J. S. Newberry*, noticed, xxvi, 123.
California, by *Dr. Antisell*, noticed, xxvi, 126.
California, by *W. P. Blake*, noticed, xxvi, 122.
Canada, noticed, xxv, 444.
Ichnology of Massachusetts by *E. Hitchcock*, noticed, xxvii, 270.
Iowa, by *Hall* and *Whitney*, noticed, xxvi, 411, xxvii, 103.
New Jersey, third annual, noticed, xxiv, 433.
Report, Sardinia, by *Meneghini*, noticed, xxvi, 133.

GEOLOGICAL—
Society of London, Journal, noticed, xxiii, 299, xxvii, 272.
structure of the Jornada del Muerto, N. Mexico, *G. G. Shumard*, xxix, 124.
survey of California, xxix, 449, xxx, 157, 424.
of Canada for 1857, noticed, xxvii, 272.
of Canada, figures and descriptions of organic remains, xxviii, 148.
of Canada, Report on crinoids, *Billings*, xxvi, 299.
of Illinois, Rep. on, noticed, xxv, 286.
Iowa, notice of, xxv, 446.
Kentucky, noticed, xxiii, 272, xxv, 283, 446, xxix, 287.
Mississippi, by *L. Harper*, xxvi, 131.
New Jersey, 2nd report on, noticed, xxi, 423.
S. Carolina, Reports on, *O. M. Lieber*, noticed, xxiv, 145, xxvi, 131, xxviii, 148, xxix, 287, 452.
Tennessee, by *J. M. Safford*, noticed, xxii, 129.
of Texas, report of, *B. F. Shumard*, xxix, 287.
Vermont, xxv, 150.
Wisconsin, ordered, xxiii, 437.
Daniels, xxv, 275.
tour in State of N. York, xxi, 449.
Transactions, Vienna, xxii, 453.
U. S. and Mexican Boundary region, *Hall*, xxvi, 446.
Geologist, a monthly magazine, noticed, xxvi, 134.
GEOLOGY—
and Palæontology of New York, xxviii, 149.
age in, of Connecticut river sandstone, xxiv, 427.
of the Alps, xxix, 118.
American, on some points in, *J. M. Safford*, xxvii, 140.
Anthracite system of the Alps, *Gras*, xxix, 122.
of Anticosti, xxv, 444.
Arctic fossils in, *Haughton*, xxvi, 119.
Assiniboine and Saskatchewan Exploring Ex., notice of, xxix, 288.
auriferous regions of California and Georgia, *Blake*, xxvi, 128.
of Bermuda, notes on, *Scott*, xxiv, 274.
Bigsby on N. York Palæozoic, noticed, xxvii, 272.
Blastoidea, new U.S., *Shumard*, xxvi, 127.
botany and zoology, in N. California, xxviii, 152.
of Britain, subdivisions of Palæozoic strata, *Sedgwick*, xxi, 343.
of California, tertiary fossils, described by *T. A. Conrad* and *Agassiz*, xxi, 268, 272.
facts in, xxiii, 299.
of Canada, *Logan* and *Hunt* on, noticed, xxi, 151.
on the Huronian and Laurentian rocks in, *J. D. Whitney*, xxiii, 305.
Canadian Naturalist and Geologist, noticed, xxx, 160.
GEOLOGY—
Carboniferous fossils, Indiana, &c., xxiv, 276.
cave in Devonshire, xxviii, 287.
chemical, some points in, *T. S. Hunt*, xxx, 133.
climate in, as influenced by distribution of land and water, *Hennessy*, xxvii, 316.
coal formations of N. Am., *L. Lesquereux*, xxviii, 21, xxx, 63, 367.
measures of Kentucky and Illinios, and relations to Appalachian, *L. Lesquereux*, xxvi, 110.
of Missouri, *Swallow*, xxvi, 113.
Stevens on, xxvi, 72.
continents, outlines of, *Owen*, xxv, 130.
of county of Ste. Geneviève, Mo., by *B. F. Shumard*, xxix, 126.
of country north of Lake Superior, &c., (*Dawson's*), xxviii, 151.
Cretaceous in U. S., *J. Hall*, xxiv, 72.
of California, xxvi, 124.
of Kansas and Nebraska, including fossil plants, *Meek* and *Hayden*, xxvii, 31, 219.
of Nebraska and Pacific coast, xxiv, 275, 276, 277.
of Rocky Mountains, xxvi, 330.
of Vancouver's Island, xxvi, 122.
crystalline limestone of Canada, xxv, 444.
Devonian trees, *Dawson*, xxiv, 280.
crinoids of Coblentz, xxiv, 280.
dolomites of the Paris basin, *T. S. Hunt*, xxix, 284.
D'Orbigny's contributions to, xxvii, 71.
Edentata, new genus of, *L. Nodot*, xxvi, 132.
Elephas primogenius, discovery of bones of, in Indiana, xxviii, 283.
of England, paper on, referred to, xxvi, 411.
flint in chalk, origin of, *G. C. Wallich*, xxix, 447.
folding of strata of Petit-Cœur, *Mortillet, Murchison, Elie de Beaumont, Sismonda*, xxix, 121.
for teachers, &c., notice of, xxix, 288.
former connection of Australia with N. Guinea and the Arru Islands, xxv, 280.
fossil flora of Australia, *J. D. Hooker*, xxix, 330.
fossils of Kentucky, *T. Cox*, xxvi, 154.
Permian of Texas and New Mexico, &c., *B. F. Shumard*, xxix, 125.
Gangstudien, &c., notice of, xxix, 453.
glacial action in California, xxvi, 125.
glaciers of Wales, xxviii, 289.
greensand, foraminiferous origin of, *Bailey*, xxii, 280.
Hall's contrib. to Palæont. of Iowa, noticed, xxx, 308.
iceberg drift theory in, xxiv, 239.
igneous rocks of Canada, *T. S. Hunt*, xxix, 282.
Illustrations of Surface, by *E. Hitchcock*, noticed, *J. D. Dana*, xxiv, 430.

GEOLOGY—
Jurassic, supposed, of Rocky Mountains, xxvi, 329.
Lesquereux, note to, on American Cretaceous, *J. S. Newberry*, xxx, 273.
limits of distribution of marine types of animals in fresh water, xxv, 290.
Lombardy Alps, *Omboni*, xxix, 121.
mammals, new fossil, of the Oolite of England, xxiv, 144.
Marcou's Dyas and Trias, xxviii, 256.
Marsupial, new, in Australia, xxvi, 411.
mastodon on Long Island, xxvi, 134.
metamorphism, *Delesse* on, noticed, xxvi, 132.
from hot springs, in California, xxvi, 125.
forming magnesian rocks, *T. S. Hunt*, xxiv, 272.
new processes, *Deville*, xxvi, 411.
Mexican boundary Commission, xxviii, 148.
of Missouri, reports on, noticed, xxi, 151, 427.
of Nebraska, and list of mammals in, *F. V. Hayden*, xxvi, 276, 404.
of Nebraska and the North, *Meek* and *Hayden*, xxii, 423.
of Nebraska and Utah, *F. V. Hayden*, xxix, 433.
Meek and *Hayden*, xxv, 439.
rocks and fossils, *F. V. Hayden*, xxvi, 116, 276, 404.
of New York, discovery of new fossils in the Potsdam sandstone in, xxiv, 434.
of N. Carolina, by *E. Emmons*, noticed, xxiv, 427.
of Northern North America, *A. K. Isbister*, xxi, 313.
oil-coal of Pictou, *H. How*, xxx, 74.
wells of Pa., and Ohio, xxx, 305.
of Oregon, etc., *Shumard*, xxvi, 122.
ossiferous caves of Palmero, xxviii, 284.
Owen's Key to Geol. of the Globe, noticed, xxiv, 158.
of Pennsylvania, xxviii, 149.
Permian, in Guadalupe Mts., xxv, 442.
in Illinois, xxvi, 129.
in Kansas, *Swallow*, xxv, 305*, 442, xxvi, 115, 182.
Meek and *Hayden*, xxv, 442, xxvii, 424.
in N. America, *Marcou* on, xxvi, 260, 327.
Physical structure of the earth, *Hennessy*, xxii, 416.
Plants of U. States, *Lesquereux*, xxvi, 112.
Post-pliocene of Maine, xxvii, 141.
Potsdam fossils, *E. Billings*, xxx, 337.
proportion of bivalves of different ages in, xxiv, 150.
of the St. Lawrence valley, *Dawson*, xxvii, 434.
sandstone of Connecticut valley, determination of age, from fossil fishes, xxii, 357.
remarks on origin of, xxii, 357.
Savoy, anthracitic and jurassic formations of, xxix, 118.
GEOLOGY—
Savoy, triassic system in, *Favre*, xxix, 119.
of Scotland, north of, *Murchison*, xxi, 276.
silica of chalk, origin of, from sponges, xxii, 415.
Silurian of Tennessee, xxvi, 128.
graptolites, *Hall*, xxvi, 117.
Silurian-devonian of Scotland, *Page*, xxvii, 141.
slaty cleavage in, xxiv, 150.
of S. Carolina, by *Lieber*, notice of, xxix, 452. See *Geological*.
Stonesfield slate mammal, *Owen*, xxii, 419.
supplement to Lyell's, noticed, xxiv, 143.
Teneriffe, submarine origin of, xxviii, 288.
of Tennessee, by *R. O. Currey*, noticed, xxiv, 280.
Tertiary climate, xxvi, 279.
Tertiary of California, xxvi, 123, 126.
Triassic, on the so-called, of Kansas, *Meek* and *Hayden*, xxvii, 31.
of U. States, xxvi, 326, 328.
trilobite, new, from Potsdam sandstone, *F. H. Bradley*, xxx, 241.
note on, by *Billings*, xxx, 242, 337.
trilobites, new Silurian, of Canada, *Chapman*, noticed, xxvi, 127.
Upper Ludlow rocks, *Murchison*, xxii, 418.
See further, *Fossil*, and *Volcano*.
Gerhardt, obituary of, xxiii, 102.
Gestation, unusual modes of, *Wyman*, xxvii, 5.
Geysers in California, xxvi, 288.
Gibbons, H., climate of San Francisco, for 1855, xxi, 305.
Gibbs and *Genth*, a new base containing chromium, xxv, 248.
Gibbs, W., Chemical notices, xxi, 125, 409, xxii, 105, 400, xxiii, 116, 265, 430, xxiv, 140, 262, 422, xxv, 98, 265, 438, xxvi, 105, 399, xxvii, 123, 260, 416, xxviii, 144, 276, 432, xxix, 113, 272, 423, xxx, 121, 415, 420.
equivalent of cobalt, xxv, 438.
note on law of vapor-densities, xxiv, 422.
on ammonia-cobalt bases, xxiii, 234, 319, xxiv, 86.
on the platinum metals, xxix, 427.
rational constitution of certain organic compounds, xxv, 18.
Giffard's automatic injector, xxix, 411.
Gillespie on land surveying, xxii, 302.
problem in surveying, xxiii, 224.
Gilliss, J. M., determination of Solar parallax, xxvi, 146.
lunar rainbow and paraselena, xxx, 304.
on an earthquake in Chile, xxi, 388.
on eclipse of July 18, 1860, xxx, 285.
Gilliss's astronomical observations in Chili, xxvii, 284.
U. States Astron. Exped., noticed, xxi, 147, xxiv, 159.

Gilman, D. C., geographical notices, xxv, 305, xxvi, 86, 219, 370, xxvii, 53, 227, 368, xxviii, 89, 411, xxix, 82, 221, 400, xxx, 217, 391.
Glacier and other ice, properties of, near its melting point, xxvi, 402.
Glaciers, observations on northern, xxiv, 239.
of the Tengri-Tagh, in Asia, xxvii, 231.
Gladstone, J. H., influence of solar radiation on plants, xxii, 49.
on dichromatic phenomena in solutions, xxii, 412.
Glass, action of acids on, xxiv, 395.
colored by gold, xxiv, 271.
soluble, *Fuchs*, xxiii, 100.
Glycerine, action of chlorid, bromid, and iodid of phosphorus on, xxiii, 267.
artificial production of, xxiv, 140.
cane sugar from, xxiv, 413.
uses of, *H. Wurtz*, xxvi, 195.
Glycol, a new body, *Wurtz*, xxiii, 266.
Glyoxal, action of ammonia on, xxvii, 125.
and glyoxalic acid, xxiv, 426.
Glyptonotus, from the Antarctic, xxii, 391.
Godron on the flora of Lorraine, noticed, xxiv, 413.
Gold in Georgia, *Blake*, xxvi, 128, 278.
observations on divided, *Faraday*, xxiv, 269.
Gordon, R., on aurora of 1859, xxx, 355.
Gosse, P. H., on Nat. Hist. of Alabama, xxix, 132.
Gould, A. A., address on J. W. Bailey, xxv, 153.
Gould, B. A., Meridian Instruments of the Dudley Observatory, xxiii, 404.
Gould, J., on the U. S. Humming bird, xxv, 294.
Graham, P., on aurora of 1859, xxx, 356.
Graham, T., Elements of Inorg. and Organ. Chem., &c., noticed, xxiv, 160, xxv, 303, xxix, 304.
Grailich, Jas., obituary of, xxviii, 451.
Graphic acid, *Brodie*, xxix, 275.
Graphite, atomic weight of, *Brodie*, xxix, 274.
Gras, on anthracitic system of the Alps, xxix, 122.
Gravier, C., on aurora of 1859, xxix, 390.
Gray, A., Botanical notices, xxi, 134, 282, xxii, 134, 284, 429, xxiii. 126, 278, 438, xxv, 109, 290, xxvii, 142, 277, 437, xxviii, 290, 439, xxix, 127, 436, xxx, 137, 375.
Botany of Japan, xxviii, 187.
How Plants Grow, by, noticed, xxvi, 139.
Manual of Botany, noticed, *Darlington*, xxii, 437.
on hybridization, xxi, 135.
on potato of New Mexico and Texas, xxii, 284.
on the coiling of tendrils, xxvii, 277.
plants, for what created, xxi, 422.
review of Darwin's "Origin of Species," &c., xxix, 153, xxx, 226.
statistics of flora of northern United States, xxii, 204, xxiii, 62, 369.
Greenland Nat. Hist. of, noticed, xxv, 124.
Greensand, origin of, *Bailey*, xxii, 280.
Greg, R. P., meteoric iron containing lead, xxiii, 118.
Greg and Lettsom's Mineralogy, noticed, xxvi, 134.
Greg, on meteorites, noticed, xxi, 302.
Gregory, W., on Diatomaceæ in soils, xxi, 434.
Gregory's Chemistry, American edition by Sanders, noticed, xxiii, 296.
Griscom, J. H., Memoir of J. Griscom, &c., xxix, 151.
Grisebach's outlines of systematic botany, noticed, xxviii, 441.
Grunow, indicator stage for microscopes, made by, xxi, 386.
catalogue of instruments, noticed, xxiv, 448.
Guano of Monk's Island, *A. A. Hayes*, xxii, 300.
C. Bickell and *J. Higgins*, xxiii, 121.
A. S. Piggot, xxii, 299, xxiii, 120.
C. U. Shepard, xxii, 96.
W. J. Taylor on, xxiv, 177.
Guest, W. E., on aurora of 1859, xxx, 350.
Guigardet's lamp for giving light under water, xxix, 413.
Gulf Stream, Coast Survey on, xxv, 250.
discovery of, xxvi, 87.
explorations, *A. D. Bache*, xxix, 199.
Florida, *E. B. Hunt*, xxvii, 206.
Lecture on, by *A. D. Bache*, xxx, 313.
on temperature in and near, *A. D. Bache*, xxi, 29.
Gulick, L. H., on Ponape or Ascension Island, xxvi, 34.
tides at Ponape, xxii, 142.
Gunpowder, chemical theory of, xxvi, 106.
pressure of fired, *W. E. Woodbridge*, xxii, 153.
Gunther's Catalogue of the Acanthopterygian Fishes in Br. Museum, notice of, *W. Stimpson*, xxx, 140.
Gutherie on valeral, xxviii, 145.
Gutta percha, artificial, etc., *de Claussen*, xxi, 291.
of Surinam, xxvi, 295.
tubes, xxi, 445.
Guyot, A., formula of progress in the earth's physical history, xxiii, 147.
heights of N. Carolina mountains, xxiv, 277.
measurements of the Alleghany system, noticed, xxx, 391.
Physical Tables by, noticed, xxvii, 62, 149.
Gypsum and magnesian rocks, how formed, xxviii, 176, 365.
Gyroscope, *J. G. Barnard* on, xxiv, 49, xxv, 67, 417.
experiment with, with reference to the relation of mechanical force and heat, xxi, 119.
H. A. Newton on, xxiv, 253.

H.

Hadrosaurus Foulkii, xxvii, 266.
Haidinger, W., catalogue of meteorites in the Vienna collection, xxix, 139.

Haidinger, *W.*, Der Meteoreisenfall von Hraschina, notice of, xxix, 300.
on aurora of 1859, xxix, 395.
on polarized light, xxi, 125.
Hailstorm in N. Carolina, xxii, 298.
Hall, *A.*, on aurora of 1859, xxix, 249.
Hall, *J.*, Cretaceous fossils of Nebraska, xxiv, 275.
crinoids of New York, xxv, 277.
Geology of Iowa by, noticed, xxvii, 103.
new Palæozoic fossils, xxv, 108.
N. Y. palæontology, xxviii, 149.
on Carboniferous fossils, noticed, xxiv, 276.
on graptolites, xxvi, 117.
on the Carboniferous limestones of the Mississippi valley, xxiii, 187.
on the genus Archimedes or Fenestella, xxiii, 203.
on the U. S. Cretaceous, xxiv, 72.
Wollaston medal to, xxvi, 154.
Hallowell, *B.*, on aurora of 1859, xxix, 259.
Hallowell, *E.*, list of Reptiles of some W. India Islands, xxiii, 282.
Hamilton, *W. H.*, on aurora of 1859, xxx, 347.
Hancornia speciosa, xxi, 291.
Hansteen, medal in honor of, xxvi, 447.
Hansteen, *C.*, on aurora of 1859, xxix, 387.
Hare, R., obituary of, xxvi, 100.
Harrington, *G. F.*, on open Polar Sea, xxvi, 448.
systematic philosophy, by, noticed, xxvi, 448.
Harris, T. W., obituary of, xxi, 300.
Harvey, *Wm. H.*, Nereis Boreali-Americana, by, noticed, xxvii, 142.
Phycologia Australica, noticed, xxiv, 288.
Thesaurus Capensis, noticed, xxviii, 441.
Haskell, *R. C.*, eruption of Mauna Loa, xxix, 301.
visit to Mauna Loa, xxviii, 66.
2d visit, xxviii, 284.
Haskins, *R. W.*, the open Polar Sea, xxv, 84.
Hatch, *T. P.*, floral calendar, xxi, 297.
Haughton, on Arctic Fossils, xxvi, 119.
Hausmann, J. F. L., death of, xxix, 304.
Haven's Narrative of a voyage to Spitzbergen, noticed, xxx, 393.
Hawaii, eruption at, *T. Coan*, xxii, 240.
eruption on, and map of, xxvii, 412.
see *Volcano*.
Hayden, *F. V.*, explorations in Nebraska, xxix, 286.
fossils of Nebraska, xxiv, 149, 277.
geology of Missouri river region, xxiv, 276.
new genus of shells in Nebraska, xxix, 33.
geol. of Nebraska and Utah, xxix, 433.
on Nebraska rocks and fossils, xxvi, 116, 276, 404, xxvii, 219.
on the so-called Triassic of Kansas, xxvii, 31.
Hayes, *A. A.*, action of heat on bituminous coals, xxvii, 294.
meteorite of Marblehead, xxv, 135.
Hayes, *A. A.*, on native iron of Africa and Canaan, Ct., xxi, 153, 157.
on serpentine rock, xxi, 382.
Hayes, *I. I.*, on the practicability of reaching the North Pole, xxvi, 305.
proposed Arctic journey, xxix, 401.
sailed for N. Pole, July, 1860, xxx, 159.
the passage to the North pole, xxv, 384.
Hayes's new Arctic expedition, notice of, xxx, 159.
Hayti, *Weinland* on, xxvi, 210.
Heat, and work, *Helmholtz*, xxiv, 196, 198.
as equivalent of work, *Hoppe*, xxi, 409.
developed in water by agitation, xxv, 145.
effects on density of quartz, etc., xxi, 210.
from condensation of bodies of planetary system, *Helmholtz*, xxiv, 215.
in sun's rays, *Elisha Foote*, xxii, 377.
circumstances affecting, *Eunice Foote*, xxii, 382.
influence of metals on radiant, xxv, 99.
of the sun, effects of, *Helmholtz*, xxiv, 207.
on producing intense, *Deville*, xxii, 105.
on radiant, *B. Stewart*, xxvii, 132.
on theorem of equivalence of work and, *Clausius*, xxii, 180, 364, 402.
relation of, to mechanical force, shown by gyroscope, xxi, 119.
specific, of some elements, *Regnault*, xxii, 108.
see *Temperature*.
Heer, *O.*, on fossil plants of Washington Territory, xxviii, 85.
on N. Carolina fossils, xxiv, 428.
origin of species living in the Azores, Maderia and the Canaries, xxiii, 130.
Height, change in, by moisture, xxvi, 275.
of atmosphere, xxvii, 449.
of Himalayas, xxiv, 278, xxvii, 62.
of M. Diablo, California, xxvi, 126.
of mountains of North Carolina, xxiv, 277, xxx, 391.
of Mt. Shasta, xxvi, 123.
of the peak of Aconcagua, xxvi, 411,
Heintz, on new series of organic acids. xxix, 272.
Hemholtz, *H.*, on the interaction of natural forces, xxiv, 189.
Henfrey, A., death of, xxix, 441.
Henfrey, *Prof.*, on rootlets, xxviii, 442.
Elementary Botany, noticed, xxiv, 434.
Hennessy, change of sea level caused by variations in the earth's ellipticity, xxv, 109.
direction of gravity at the earth's surface, xxv, 106.
on heating of the atmosphere by contact with the earth's surface, xxvii, 151.
on isothermal lines, xxiii, 144.
on laws of isothermal lines, xxvii, 328.
on terrestrial climate, xxvii, 316.

Henry, J., letter from, in reference to aurora of 1859, xxx, 339.
on conservation of force, xxx, 33.
on testing building materials, xxii, 30.
Hermann, on ilmenium in columbite, xxi, 198.
Herrick, E. C., astronomical notices, xxviii, 153, 445, xxix, 136, 296, 446, xxx, 141.
on auroral arch, xxviii, 154.
on height of auroral curtain of Aug., 1859, xxviii, 406.
on shooting stars of Aug. 1856, xxii, 290, of Aug. 1858, xxvi, 435, 9 and 10, 1859, xxx, 296.
on supposed new planet between Mercury and the Sun, xxviii, 445, xxix, 296, 416.
Herschel, remarks on chemical science, xxvii, 128.
Hibbard, A. A., on aurora of 1859, xxx, 339.
Hibbard, A. H., on aurora of 1859, xxx, 349.
Hickok, L. P., Rational Cosmology, by, noticed, xxviii, 158.
Higgins, J., on Columbian Guano, xxiii, 121.
Hildreth, S. P., meteorological journal kept at Marietta, xxi, 189, xxiii, 215, xxv, 357, xxvii, 214, xxix, 218.
Hilgard, E. W., blowpipe assay of chromium, xxiv, 387.
Hill, T., on aurora of 1859, xxx, 341.
Himalayas, heights of newly discovered peaks, xxiv, 278.
Schlagintweit, xxv, 310.
Hind, H. Y., report of Assiniboine, &c., Expl. Ex., noticed, xxix, 288.
Hippuric acid, xxii, 102.
Hitchcock, E., bowlder from drift of Amherst, xxii, 397.
new fossil fish, xxi, 96.
new fossil footmark from Turner's falls, xxi, 97.
on Ichnology, noticed, xxvii, 270.
Hitchcock, E., Jr., new fossil shell of the Conn. R. sandstone, xxii, 239.
Hitchcock's Illustrations of Surface Geology, noticed, xxiv, 430.
Hobson, organo-thionic acid, xxiv, 142.
Hofmann, A. W., vegetable parchment, xxix, 278.
Hoffmann, H., Witterung, &c., noticed, xxiv, 153.
Holmes, F. S., post-pleiocene fossils of S. Carolina, xxix, 288.
recent Mammalia in the U. S. post-pliocene, xxv, 442.
Holmes, W. P., death of, xxx, 424.
Holton, I. F., on New Granada, noticed, xxiii, 448.
Home, N., on aurora of 1859, xxix, 251.
Homology, remarks on, *Owen*, xxvi, 424.
Hooker and *Thompson's* Præcursores ad Fl. Indica, xxiv, 283.
Hooker, J. D., flora of Australia, xxix, 316.
on origination and distribution of species, &c., xxix, 1, 305.
Hooker's Species Filicum, xxvii, 146.
Hopkins, W., on Screw-propellers, xxiii, 60.
Horr, A., on aurora of 1859, xxx, 341.
Horsfield, T., death of, xxix, 441.
Hot springs of California, xxvi, 125.
Hough, F. B., work by, on meteorological observations in N. York, xxi, 149.
How, H., on Faroelite, xxvi, 30.
on natro-borocalcite of Nova Scotia, xxiv, 230.
on oil-coal of Pictou, xxx, 74.
Hubbert, J., on aurora of 1859, xxix, 252.
Hugard's description of the mineralogical cabinet of the Garden of Plants, noticed, xxi, 280.
Human remains in the drift, *Prestwich*, xxix, 269.
Humboldt, A. v., eulogy of *Agassiz* on, xxviii, 96.
foundation, xxviii, 429, 449.
letter from, on Bonpland, xxvi, 301.
Cosmos, xxv, 302.
Humming bird of the United States, xxv, 294.
Humphreys's Report on the progress of U. S. explorations and surveys, xxvii, 381.
Hunt, E. B., new sounding apparatus, xxvi, 242.
on infinity, xxv, 1.
on ocean currents, xxvii, 169.
on the Florida Gulf Stream, xxvii, 206.
on scientific publications, xxvi, 25.
Hunt, T. S., Chemical Geological Report, xxv, 445.
chemistry of the primeval earth, xxv, 102.
on cherokine, xxiv, 275.
correction, history of euphotides, xxviii, 151.
on dolomites of the Paris basin, xxix, 284.
on euphotide and saussurite, xxv, 437, xxvii, 336.
on igneous rocks of Canada, xxix, 282.
on ophiolites, xxv, 217, xxvi, 234.
on salts of lime and magnesia, and formation of gypsum and magnesian rocks, xxviii, 170, 365.
on saussurite and euphotide, xxv, 437, xxvii, 336.
on some points in chemical geology, xxx, 133.
on the extraction of salts from sea-water, xxv, 361.
origin of feldspars, xxv, 435.
probable origin of some magnesian rocks, xxiv, 272.
reaction of salts of lime and magnesia, xxvi, 109.
reactions of alkaline siliciates, xxiii, 437.
review, on some points in the geology of the Alps, xxix, 118.
silicates of the alkalies in metamorphism, xxv, 287.
Hurricanes, list of cyclonic, by *A. Poey*, noticed, xxii, 452.
Huxley, T. H., lecture on the phenomena of gemmation, xxviii, 206.
Hybridity, remarks on, *J. D. Dana*, xxiv, 309.

Hybrids among plants, observations on, *Hooker*, xxi, 135.
Hydrocarbons, new, *Fritzsche*, xxvii, 120.
Hydrocarburets, combinations of with hydracids, *Berthelot*, xxiv, 423.
Hydrogen, purification of, xxvi, 402.
Hypnotism, xxix, 417.

I.

Ice, dissolution of, *C. Whittlesey*, xxix, 111.
properties of, near its melting point, xxvi, 402.
stratification of vesicular, by pressure, *W. Thompson*, xxvii, 300.
sudden disappearance of, on lakes, *Gen. Totten*, xxviii, 359.
Iceberg theory of drift, xxiv, 239, 432.
Icebergs, northern, *Kane*, xxiv, 239.
Ichnology of New England, *Hitchcock* on, noticed, xxvii, 270.
Ichthyodorulites, on two, *Leidy*, xxi, 421.
Iguanodon, fossil related to, in Nebraska, *Leidy*, xxii, 118.
Illumination, relation of, to magnifying power, *Twining*, xxvi, 22.
Ilmenium, in columbite, &c., *Hermann*, xxi, 198.
Incrustations on boilers, *H. Wurtz*, xxvi, 369.
Incrusting matter, xxviii, 125.
Indigo, decoloration of, by sesquioxyd of iron, xxix, 429, xxx, 132.
from the Indigofera Caroliniana, xxiv, 288.
test, *H. Wurtz*, xxvi, 49.
Infinity, *E. B. Hunt* on, xxv, 1.
Infusoria in Oregon, xxvi, 125.
in sea of Kamtschatka, *Bailey*, xxii, 1.
in soils, *W. Gregory*, xxi, 434.
of soundings, *J. W. Bailey*, xxiii, 153.
of bottom of sea of Kamtschatka, *Bailey*, xxi, 284.
on cleaning Diatomaceæ, *J. W. Bailey*, xxi, 145, 356.
Inland Seas of Africa, xxviii, 411.
Insecta Maderensia, noticed, xxii, 286.
Insects, noxious, *Fitch* on, noticed, xxiii, 150.
see *Zoology*.
Inundations in France, xxii, 267.
Iodids of organic radicals, new, xxiv, 425.
Iodine, crystalline form of, xxii, 271.
Iron, double nitrosulphid of, xxvi, 106.
influence of sulphur on, xxiv, 330.
malleable, and steel, *Bessemer's* process for, xxii, 406.
manufacturer's guide, for the U. S., xxviii, 156.
native, of Africa, *Hayes*, xxi, 153.
of Canaan, Ct., *Hayes*, xxi, 157.
ores for steel, *Chenot*, xxi, 255.
ores of Azoic System, *J. D. Whitney*, xxii, 38.
powder, *Magnus* on, xxvii, 121.
protoxyd, reducing action of, with caustic potash, xxvii, 124.
sponge, *Chenot*, xxi, 255.
Isbister, *A. K.*, geology of northern North America, xxi, 313.
Isethionic and lactic acids, *Kolbe*, xxix, 274.
Isomorphism of prehnite and chrysolite, xxvi, 361.
Isothermal lines, *Hennessy* on, xxiii, 144.
Isthmus of Suez, level &c. of, xxii, 273.
Itabirite rock of S. Carolina, xxiv, 146.
Itacolumite rock of S. Carolina, xxiv, 145.

J.

Jackson, *C. T.*, on agalmatolite, xxiv, 273.
on bornite from Georgia, xxvii, 366.
on verd-antique, xxiii, 123.
Jacobs, *M.*, on aurora of 1859, xxx, 345.
James, *P. B.*, air-balance barometer, xxvi, 271.
Jamin, Cours de Physique, &c., noticed, xxvii, 259, xxix, 152.
on indices of refraction, xxv, 265.
on movement of fluids in porous bodies, xxix, 418.
Janoyer, on the influence of sulphur on iron, xxiv, 330.
Japan expedition, notice of report of volume, including natural history, xxiv, 447.
relations of its botany to that of N. America, *Gray*, xxviii, 187.
Jeffreys, *J. G.*, on Foraminifera, xxi, 432.
Jennings, *S. K.*, on aurora of 1859, xxx, 348, 357.
Jerusalem, Tobler's planography of, xxvi, 377.
Johnson, *A. S.*, on indicator stage for microscopes, xxi, 386.
Johnson, *D. M.*, on meteorite of May 1, 1860, xxx, 109.
Johnson, *S. W.*, on some points of agricultural science, xxviii, 71.
on two sugars from California, xxii, 6.
translation of biography of von Fuchs, xxiii, 95, 225.
Johnson, *W. R.*, on the rotascope, xxi, 146.
Johnston, *C.*, improved mode of preparing diatoms, xxviii, 448.
on preparing and mounting hard tissues for the microscope, xxv, 232.
Jones, *G.*, on a shower of ashes about Quito, xxiii, 276.
on the zodiacal light, xxiv, 289, 374.
observations at Quito, xxiii, 150, 161, 285.
Jones, *T. R.*, Aquarian Naturalist, by, noticed, xxvi, 436.
on Fossil Entomostraca, noticed, xxiv, 446.
Jourdier's Pisciculture, &c., xxi, 408.
Journal of Am. Geog. and Statistical Soc., notice of, xxix, 402.
of the Roy. Dublin Soc., xxvii, 155.
of the Royal Geog. Soc. of London, notice of, xxix, 246.
Julien's Histoire et Fabrication de la Porcelain Chinoise, noticed, xxi, 408.
Jurassic, see *Geology*.

K.

Kamtschatka, soundings off, *Bailey*, xxii, 1.
Kane, *E. K.*, Arctic Explorations of, reviewed, xxiv, 235.
Elder's life of, noticed, xxv, 303.
gold medal to, xxvi, 373.

Kansas, Permian of, *Swallow*, xxv, 305*.
and *Hawn*, xxv, 442.
Meek and *Hayden*, xxv, 442, 451.
Kellogg, F., on aurora of 1859, xxx, 358.
Kelly, W., variations of atmospheric pressure, in the Gulf of St. Lawrence, xxv, 448.
Khanikoff's travels in Persia, xxix, 409.
Kiepert's Map of New Granada, xxvii, 58.
Map of Tropical America, xxvii, 57.
Neuer Hand Atlas, noticed, xxx, 396.
Kilauea, see *Volcano.*
Kimball, J. P., on sodalite and elæolite, xxix, 65.
Kingston, G. P., aurora of Aug. 1859, xxviii, 388.
Kirchhoff, on Fraunhofer's lines, xxix, 423.
on chemical analysis by spectral observations, xxx, 415.
Kirkwood, D., on aurora of 1859, xxviii, 396.
on nebular hypothesis, xxx, 161.
Knoblauch, radiant heat and metals, xxv, 99.
Kobell, biography of von Fuchs, xxiii, 95, 225.
Kobell, H. von, stauroscopic observations, noticed by *O. N. Rood*, xxvii, 388.
Kohl, on Bay of San Francisco, xxvi, 372.
Report on discoveries on the Pacific coast, xxviii, 93.
routes between England and America, xxvi, 86.
Kokscharov, Mineralogie Russlands, xxv, 396.
Kolbe, on isethionic and lactic acids, xxix, 274.
on lactic acid, xxviii, 144, xxix, 425.
valeral, xxviii, 145.
Kopp, H., on law of densities of vapors, xxiv, 422.
specific volume of nitrogen compounds, xxii, 108.
physical properties of chemical compounds, xxi, 412.
Kotschy's Travels in the Taurus, xxvi, 377.
Krantz's Mineral-Comptoir, noticed, xxvii, 437.
Krapf, J. L., Residence and Travels in Eastern Africa, noticed, xxix, 240.
Kuhlmann, manufacture of soda and baryta, xxvii, 120.
Kuntzman, Spruner and *Thomas*, atlas of America, xxviii, 419.
Kurtz, J. D., Cat. of recent Marine shells, &c., xxix, 294.

L.

Lacaita on earthquakes of Italy, xxviii, 210.
Lactic acid, alanin formed from, *Kolbe*, xxix, 425.
constitution of, *Kolbe*, xxix, 425.
converted into propionic, xxix, 425.
Ladrey on viticulture, noticed, xxvii, 155.
Lake, fluctuations, *Whittlesey*, xxvii, 305, 446.
Ontario, varying level of, *Dewey*, xxvii, 398. xxix, 300.
Ooroomiah, waters of, xxii, 276.
Lakes, disappearance of ice on, xxviii, 359.
Lamé, G., Leçons sur les coordinées curvilignes, &c., noticed, xxix, 152.
Lane, J. H., on an automatic comparison of time, &c., xxix, 43.
on photographing meteors, xxx, 42.
Lapham, I. A., rocks and fossils of Wis., xxix, 145.
La Plata basin, map of, xxvi, 372.
Larkin, E. P., on aurora of 1859, xxx, 340.
Lartigue, H., on aurora of 1859, xxix, 390.
Larves of flies not poisoned by arsenic, xxviii, 166.
Lava consolidates on steep slopes, xxviii, 221.
see *Volcanic.*
Lead in meteoric iron of Chili, *Greg*, xxiii, 118.
Lea, A. M., on aurora of 1859, xxx, 349, 360.
Lea, I., fossil reptiles, Pa., xxii, 122.
on the genus Unio, noticed, xxvii, 299, 447.
recent papers on bivalves by, xxiv, 155.
Lea, M. C., on numerical relations of Eq. numbers of Elem. bodies, xxix, 98, 349, xxx, 399.
on optical properties of picrate of manganese, xxx, 402.
on picric acid and its salts, xxvi, 379.
on production of ethylamine, xxx, 401.
Lead, perforation of, by insects, xxv, 432.
Leblanc's process of manufacture of soda, xxii, 99.
LeConte, J., influence of musical sounds on the flame of a jet of gas, xxv, 62.
influence of solar light on combustion, xxiv, 317.
LeConte, Jos., correlation and conservation of force in physical, chemical and vital phenomena, xxviii, 305.
formation of Florida, xxiii, 46.
Lecture, *Huxley's*, on phenomena of gemmation, xxviii, 206.
Lehmann, C., Revisio Potentillarum, &c., noticed, xxiv, 153.
Leichardt's fate, xxvii, 237.
Leidy, J., fossil reptiles and fishes from Nebraska, xxii, 118.
notice of papers by, xxiii, 450.
on a boring sponge, xxiii, 281.
on Nebraska fossils, xxv, 441.
on some Carboniferous fishes, &c., noticed, xxii, 453.
on the extinct sloth tribe of N. America, and on the marine Invertebrata of R. Island and N. Jersey, noticed, xxi, 302.
on the Hadrosaurus, xxvii, 266.
on two ichthyodorulites, and notices of some extinct Nebraska mammals, xxi, 421.
vertebrate fossils of N. Carolina, xxiii, 271.
Lejeune, A. L. S., death of, xxix, 441.
Lenses for illumination, from sections of hollow spheres, xxiii, 443.
Lentz, R., explorations in Persia and Afghanistan, xxix, 232.
Lepidotus, fossil fish, xxii, 120.

Lescarbault, alleged discovery of new planet, xxix, 415.
Lesley, J. P., his iron manufacturer's guide, noticed, xxviii, 156.
Lesley's Manual of Coal and its Topography, noticed, xxii, 302.
Lespiault on Baily's Beads, xxx, 292.
Lesquereux, L., coal formations of North America, xxviii, 21, xxx, 63, 367.
coal measures of U. S., xxvi, 110, 112.
plants of Pennsylvania, etc., xxv, 286, 447.
fossil plants of recent formations, xxvii, 359.
fossil plants from Vancouver's Island, &c., xxviii, 85.
note on Newberry's criticism of Dr. Heer, xxix, 434.
Le Verrier, on solar eclipse of July 18, 1860, xxx, 309.
perturbations of Uranus, xxviii, 445.
Level, change of, at Armagh Observatory depending on the season, xxv, 107.
along Atlantic coast of U. States, xxi, 423.
in Baltic, xxv, 443.
in New Zealand, xxii, 128.
at temple of Serapis, xxii, 126.
of sea, changed by variations in the earth's ellipticity, *Hennessy*, xxv, 109.
Liais, first comet of 1860, xxx, 141.
questions Lescarbault's discovery, xxx, 142.
Lichens of North America, *Tuckerman*, xxv, 422, xxviii, 200.
Lieber, O. M., Geological Survey of South Carolina, notice of, xxiv, 145, xxvi, 131, xxviii, 148. xxix, 287, 452.
on changes in coast of S. Car., xxvii,i 354.
Liebig on scientific and practical instruction, xxviii, 298.
on the mellonids, xxi, 128.
Light, action on oxalate of iron, xxv, 102.
discoveries in action of, new, *Niepce*, xxv, 148.
for light-houses, &c., xxiii, 442.
influence of, on disengagement of carbonic acid by animals, xxi, 146.
influence of, on plants, xxii, 49.
Jamin and Haughton's discoveries, etc., *Lloyd*, xxiv, 420.
loss of by glass shades, *King, Verver*, and *Storer*, xxx, 420.
persistent activity of, xxix, 271.
polarization of, *Stokes*, xxiv, 420.
polarized, as a reagent, *Biot*, xxx, 409.
molecular motions in, *W. H. C. Bartlett*, xxx, 361.
for the microscope, *White*, xxvi, 391.
theory of, on a new, by J. Smith, *O. N. Rood*, xxx, 182.
wave lengths of most refrangible rays, *Eisenlohr*, xxii, 400, xxiii, 116.
Lignite formation of Arctic America, xxi, 329.
Liljeborg, W., les genres Loriope, &c., xxix, 293.
Lime and magnesian salts, reaction of, xxviii, 170, 365.
Linnæan Soc., Proceedings, xxii, 134, xxiv, 281, xxvi, 137, 283.
Lithia and magnesia, separation of, *J. W. Mallet*, xxiii, 427, xxiv. 137.
detected by the blowpipe, xxix, 116.
preparation of, xxiii, 266.
Lithium, atomic weight of, *Mallet*, xxii, 349, xxviii, 349.
Livingstone, discoveries in Africa, xxiii, 139, xxv, 306.
letter from, respecting Africa, xxix, 237.
Lloyd, address of, before Brit. Assoc., xxiv, 415.
Locke, J., obituary, xxii, 301.
Loewel, H., on catalysis and contact action, and on supersaturated saline solutions, xxx, 411.
Logan, Sir W. E., Geol. survey of Canada by, noticed, xxviii, 148.
Canada Geol. Report, noticed, xxv, 444.
Logan, T. M., on aurora of 1859, xxix, 260.
Meteorology, observations at Sacramento, Cal., xxix, 446.
Longitude by electric telegraph, xxv, 79.
of Cambridge, Mass., xxv, 80.
determinations, American method for claimed abroad, xxiii, 139.
of Valparaiso, xxvi, 378.
Loomis, E., appointed to chair of Physics and Astronomy in Y. C., xxx, 308.
aurora of 1859, xxviii, 386, xxix, 92, 249, 386, xxx, 79, 339.
distribution of auroras, xxx, 89.
of thunder storms, xxx, 94.
electrical phenomena in houses, xxvi, 58.
meteor of Nov. 15, 1859, xxix, 137, 298, 447.
variation of magnetic needle at Hudson, O., xxvii, 167.
Lotus or sacred bean of India, xxvi, 418.
Lubbock, J., on parthenogenesis, xxiv, 401.
Lunar rainbow, *J. M. Gillis*, xxx, 304.
Luther, discovers 58th asteroid, xxx, 424.
Lütken, Dr. Ch. F., on Ophiurans, xxviii, 55.
Lycopodium, silica and alumina in ash, xxiv, 143.
Lyell, changes of level at temple of Serapis, xxii, 126.
formation of volcanic cones, xxvi, 214.
lava, consolidation of, on steep slopes, xxviii, 221.
on Prof. C. Piazzi Smyth's views of the origin of Teneriffe, xxviii. 288.
Lyman, C. S., aurora of August, 1859, xxviii, 391.
biographical sketch of D. Olmsted, xxviii, 109.
meteor of July 20, 1860, xxx, 293.
transit instrument in determining latitude, xxx, 52.
Lyman, T., abstract of Ophiurans, xxviii, 55.
on forces, xxix, 185.
rate of growth of coral, xxvi, 447.
Lyon, S. S., on new species of crinoidea, xxviii, 233, xxix, 68.

Lyon, Sidney, and *S. A. Casseday*, description of nine new crinoids, xxviii, 233.

M.

McChesney, J. H., new palæozoic fossils, xxix, 285.
McClintock, announcement of the fate of Franklin, xxviii, 423.
Arctic journey, xxvi, 119.
gold medal awarded to, xxx, 159.
McCrady, J., on Oceana nutricula, &c., xxix, 130.
McDonnold, B. W., on meteoric explosion, xxix, 138.
Macgowan, D. J., Chinese poisons, xxvi, 225.
alum in China, xxvi, 444.
Yellow river, on drying up of, xxiv, 278.
Maclaren, on change of altitude of mountains, xxvi, 274.
Maclean, Geo. M., Elements of Somatology, noticed, xxix, 150.
McMayer, A., estimation of weights of small portions of matter, xxv, 39.
Madder, cultivation of, xxv, 96.
Madeira, notes on botany of, xxii, 134.
work on insects of, by *H. V. Wollaston*, noticed, xxii, 286.
Mädler, review of Schubert's essay on the figure of the earth, xxx, 46.
Magendie, death of, xxi, 117.
Magnesia, salts of, and magnesian rocks, how formed, *T. S. Hunt*, xxviii, 170, 365.
Magnesian rocks, probable origin of, *T. S. Hunt*, xxiv, 272.
Magnesium, xxiv, 261.
as a source of light, *A. Schmitt*, xxx, 270.
Magnetic adhesion, and electro-magnets, *J. Nicklès*, xxx, 413.
declination, in the U. S., *C. A. Schott*, xxix, 335.
paramagnetic and diamagnetic bodies, disposition of force in, *Tyndall*, xxiv, 264.
phantoms, on fixing, *J. Nicklès*, xxx, 62.
philosophy, *Faraday*, xxi, 262.
variation at Hudson, *Loomis*, xxvii, 167.
Magnetism at Brussels and Paris, xxiv, 446.
notes on, *Lloyd*, xxiv, 418.
relations to torsion, xxviii, 432.
remarks on, *Owen*, xxvi, 422.
terrestrial, of U. States, *A. D. Bache*, xxiv, 1.
Magnus, electrolytic investigations, xxv, 98.
Mahistre, mechanics, noticed, xxviii, 432.
Mahla, F., on gallic and galhumic acids, xxviii, 383.
Mallet, J. W., analyses made for geological survey of Alabama, xxiii, 181.
on brewsterite, xxviii, 48.
copper, crystallization of, xxx, 253.
fluorescence of oleum neroli, xxv, 300.
supposed new case of, xxiii, 434.
lithia and magnesia, separation of, xxiii, 427, xxiv, 137.
Mallet, J. W., lithium, atomic weight of, xxii, 349, xxviii, 349.
mica, rose-colored, of Goshen, xxiii, 180.
on schrötterite, xxvi, 79.
sulphur, on red, xxiii, 185.
zeolitic mineral from the Isle of Skye, xxii, 179.
zirconium, nitride of, xxviii, 346.
Mallet, Robert and *J. W.*, earthquake catalogue, noticed, xxvii, 437.
Mammalia, *Owen* on classification of, xxv, 7, 177.
Mammals of N. America, *Baird's*, xxviii, 158.
Mammoth trees of California, xxvii, 443.
Man, races of, and enumeration, xxv, 137.
Manganese, equivalent of, xxv, 438, xxviii, 437.
optical properties of picrate of, *M. C. Lea*, xxx, 402.
preparation and properties, xxiv, 140.
Manometer alarm, Breguet's electrical, xxii, 268.
Mantell's Medals of Creation, xxii, 150.
Marble, verd antique, analyses of, *C. T. Jackson*, xxiii, 123.
Marcou, J., Dyas and Trias, *Murchison's* notice of his, xxviii, 256.
geological map, reviewed, *W. P. Blake*, xxii, 383.
Geology of N. America, reviewed, xxvi, 323.
notice of, *Agassiz*, xxvii, 134.
Dana, xxvii, 137.
his Jurassic in N. Mexico shown to be Cretaceous, xxviii, 298.
note in reply to, by *Meek* and *Hayden*, xxvii, 34.
strictures on N. American geologists, noticed, xxviii, 153.
Marignac, on isomorphism of stannic, silicic and zirconic acids, xxviii, 437.
Marsh, B. V., on aurora of 1859, xxix, 258.
on daylight meteor, Nov. 15, 1859, xxix, 447.
Martius, Flora Brasiliensis, noticed, xxii, 436.
eulogy of *Brown*, xxviii, 290.
Marvin, A., on aurora of 1859, xxx, 355.
Massey's indicator for deep sea soundings, xxviii, 4.
Masterman, S., on parhelia seen at Weld, Me., xxx, 155.
Mastodon Giganteus of N. America, by *J. C. Warren*, noticed, xxi, 450.
in California, xxiii, 292.
of Great Britain, *Falconer*, xxv, 274.
South America, reference to, *J. Wyman*, xxi, 147.
Mathematical Monthly, Runkle's, noticed, xxvi, 153, 447.
Mather, W. W., Report on the artesian well at Columbus, O., noticed, xxvii, 276.
obituary of, xxvii, 452.
Mathews, D., on aurora of 1859, xxx, 341.
Mathews, M. M., on aurora of 1859, xxx, 351.
Mathiot, G., on a self-sustaining voltaic battery, xxi, 43.

Mathiot, G., on the Atlantic cable, xxvii, 157.
Matteucci, Cours d'Electrophysiologie, noticed, xxviii, 432.
experiments in electro-physiology, xxii, 270.
Mattison, A., on aurora of 1859, xxx, 347.
Mauna Loa, eruptions of, xxviii, 66, 284, xxix, 301.
Maury, M. F., astronomical observations for 1848, xxiv, 447.
Nautical Monographs, notice of, xxix, 304.
Wind and Current Charts, xxiv, 300.
Mayer, F. F., on weighing moist precipitates, xxix, 280.
Mayr, F., on wolfram-steel, xxviii, 277.
Measurements of the human races, *J. B. Davis*, xxix, 329.
Mechanics and Experimental Data, fundamental ideas of, *A. Morin*, notice of *J. Bennett's* translation, xxix, 452.
Meek, F. B., Cretaceous fossils, xxiv, 275, 276.
new genus of shells in Nebraska, xxix, 33.
Meek and *Hayden*, geological explorations in Kansas with reference to the Permian, &c., xxvii, 424.
on the Lower Cretaceous beds of Kansas and Nebraska, xxvii, 219.
on Nebraska, xxv, 441.
Permian fossils of Kansas, xxv, 442, 451.
tertiary of Nebraska, xxii, 423.
Triassic of Kansas, on the so-called, xxvii, 31.
Mellonids, constitution of, xxi, 128.
Mercury, on volatilization of, *J. W. Mallet*, xxx, 124.
Meridian, measurement of arc of, in Russia, xxv, 315.
Metal, new fusible, *B. Wood*, xxx, 271.
Metals, organic compounds containing, xxiii, 269.
worked or moulded by the hydraulic press, *Chenot*, xxi, 256.
Metamorphism, *Delesse* on, xxvi, 132.
by alkaline silicates, *T. S. Hunt*, xxiii, 437, xxv, 287, 435.
in Cal., from hot springs, xxvi, 125.
in formation of some magnesian rocks *T. S. Hunt*, xxiv, 272.
prize relating to, xxv, 435.
process of, new, *Deville*, xxvi, 411.
salts of lime and magnesia, reaction of, *T. S. Hunt*, xxvi, 109.
by salts of lime and magnesia, xxviii, 170, 365.
thoughts on, *von Fuchs*, xxiii, 229.
Metcalf, S. J., Caloric, &c., notice of, xxix, 304.
Meteor of July 8th, 1856, xxii, 448.
N. K. Davis, xxiii, 138.
T. M. Peters, xxiii, 287.
of August 11, 1859, xxviii, 300.
of Nov. 15th, 1859, *E. Loomis*, xxix, 137, 298.
of May 1, 1860, *E. W. Evans*, xxx, 296.
of July 20, 1860, *C. S. Lyman*, xxx, 293.
H. A. Newton, xxx, 186.
Meteor of Aug. 2, and 6, 1860, xxx, 295.
in Minnesota, xxiv, 158.
on photographing, *J. H. Lane*, xxx, 42.
at Sandwich Islands, xxix, 300.
shooting, xxviii, 270.
Meteoric explosion in Tenn., Sept. 1, 1859, xxix, 138.
iron from Chili, containing native lead, *R. P. Greg*, xxiii, 118.
of Cape of Good Hope, xxii, 272.
of Mexico, *E. Pugh*, xxiv, 295.
of S. Africa and Mexico, *Shepard*, xxi, 213.
of Thuringia, xxii, 271.
of Xiquipilco, *W. J. Taylor*, xxii, 374.
stone of Borkut, xxvi, 299.
near Bremervörde, xxiv, 295.
of East Flanders, xxiv, 296.
from near Mainz, xxvi, 436.
of Mezö-Madaras, xxii, 272.
of Oesel, xxiv, 295.
stones which fell in Indiana, March 28th, 1859, *J. L. Smith*, xxviii, 409.
and meteors, *Helmholtz*, xxiv, 206.
on fall of, *E. B. Andrews*, xxx, 103.
Meteorite, Kaba-Debreczin and Ohaba, xxvii, 424.
supposed, of Marblehead, Massachusetts, *Hayes*, xxv, 135.
of Mississippi, *W. J. Taylor*, xxiv, 293.
supposed scoriaceous, xxiv, 449.
Meteorites, on, *C. U. Shepard*, xxx, 204.
Meteorological journal kept at Marietta, Ohio, *S. P. Hildreth*, xxi, 189, xxiii, 215, xxv, 357, xxvii, 214, xxix, 218.
floral calendar for Lauderdale County, Ala., *T. P. Hatch*, xxi, 297.
observations of New York State, work on, *F. B. Hough*, xxi, 149.
register, Army, for twelve years, 1843 1854, noticed, xxi, 446.
system of France, xxii, 266.
work entitled Philosophy of the Weather, by *T. B. Butler*, noticed, xxi, 447.
Meteorology, *Blodget's* Climatology, xxiv, 299, xxv, 235.
cold weather at Hanover, N. H., xxiv, 155.
contributions to, *Smallwood*, xxi, 286.
on heating of the atmosphere by contact with the earth's surface, *Hennessy*, etc., xxvii, 151.
of Iowa, *T. S. Parvin*, xxiii, 360.
Maury's Wind and Current Charts, noticed, xxiv, 300.
of U. States, *L. Blodget*, xxiv, 299.
Methylen, iodid of, xxvii, 125.
Mexico, boundary survey of, noticed, xxvi, 95.
new turkey of, xxii, 139.
Michaux, memoir of, *E. Durand*, xxiv, 161.
Microgeology of *Ehrenberg*, noticed, xxiv, 434.
Micrometers by photography, *Morfit*, xxx, 156.
Microscope, adaptation of, as a goniometer, and for determining index of refraction, *O. N. Rood*, xxi, 106.
Carpenter on, noticed, xxiii, 149.
first great, in 1829, xxviii, 38.
improved, *H. J. Clark*, xxviii, 37.

Microscope, indicator stage for, xxi, 386.
polarized light by compensating prism for, *White*, xxvi, 391.
preparing hard tissues for, *Johnston*, xxv, 232.
Microscopes, *Grunow's* catalogue of, noticed, xxiv, 448.
Microscopic examination of soundings, *J. W. Bailey*, xxiii, 153.
object glasses, on aperture of, *F. H. Wenham*, xxi, 103.
J. W. Bailey, xxi, 105.
Tolles' improved objectives, xxx, 156.
Milk, artificial, xxiii, 114.
Millar, J. H., on aurora of 1859, xxx, 346.
Miller, H., Testimony of the Rocks, by, noticed, xxiv, 161.
Mineral species, plesiomorphism of, *Delafosse*, xxi, 194.
localities, new, on Lake Superior, xxviii, 8.
Mineralogy, contributions to, by *Genth*, xxviii, 246.
by *J. D. Whitney*, xxviii, 8.
determinative, translation of *von Kobell* on, by *Brush* and *Johnson*, announced, xxv, 151.
C. U. Shepard's, noticed, xxiii, 148.
supplement to Dana's,
second, xxi, 193.
third, xxii, 246.
fourth, xxiv, 107.
fifth, xxv, 396.
sixth, xxvi, 345.
seventh, xxviii, 128.
eighth, *G. J. Brush*, xxix, 363.
works on, notices of new, xxi, 193, xxii, 246, xxiv, 108, xxv, 151, xxvi, 345, xxviii, 128, xxix, 363, 364.
Minerals, alteration of, *Eichhorn*, xxviii, 130.
artificial, *Deville*, xxvi, 259.
formation of, *Daubrée*, xxi, 194.
furnace products, xxii, 248.
cabinet of the Garden of Plants, notice of *Hugard* on, xxi, 280.
cabinets of, for sale, xxiv, 296.
collection of, Wheatley's, xxv, 446.
density of some, effects of fusion on, xxi, 210.
formation of, by action of steam, *Daubrèe*, xxv, 401.
indices of refraction of, *Descloizeaux*, xxv, 397.
of Brewer's mine, S. Carolina, *Genth*, xxiii, 426.
Minerals—
Aciculite, xxviii, 130.
Adelpholite, *Nordenskiöld*, xxviii, 130.
Ægirine, xxvi, 351, 352.
Æschynite, xxi, 199.
analysis, *Hermann*, xxiv, 111.
Agalmatolite, xxiv, 273.
and slates, xxv, 401.
Scheerer, xxviii, 131.
Akanthite, new species, *Kenngott*, xxi, 195.
Albite, xxix, 364.
crystals of Mt. Blanc, etc., xxvi, 346.
from California, *Genth*, xxviii, 249.
Algodonite, *Field*, xxv, 402.
Minerals—
Alisonite, *F. Field*, xxvii, 387, xxviii, 131.
Allanite, xxix, 364.
analysis, xxiv, 111.
D. Forbes, xxv, 402.
of Essex Co., N. Y., *Blake*, xxvi, 245, 346.
of Norway, xxii, 249.
(orthite) of Sweden, *Blomstrand*, xxi, 195.
Allophane of Tennessee, *C. T. Jackson*, xxi, 195.
of Woolwich, xxiv, 111, 131.
Alum of Tennessee, xxii, 249.
Alumian, *Breithaupt*, xxvi, 346.
Aluminite, xxi, 195.
Alunite, *F. Römer*, xxv, 402.
Alunogen, xxii, 249, xxvi, 346.
Alvite of Norway, xxii, 249.
Ammiolite (antimonite of quicksilver), xxi, 195.
Analcime, xxviii, 131.
of Kaiserstuhl, xxiv, 111.
of Lake Superior, xxviii, 8.
from leucite, xxvi, 355.
Anatase, crystal of, *Dauber*, xxi, 195.
Andalusite, analyses, xxii, 249.
crystals of, *Kenngott*, xxi, 195.
Andesine of Canada, analyses, *Hunt*, xxi, 201.
Anglesite of Phenixville, xxi, 195.
of Sardinia, angles, xxii, 249.
Anhydrite of Styria, xxi, 195.
Ankerite of Lobenstein, xxv, 402.
of Nova Scotia, *C. T. Jackson*, xxi, 195.
Annivite, new species, xxiv, 111.
Anorthite, xxvi, 347, xxix, 365.
analysis, *Deville*, xxi, 196.
Anthracoxene, *Reuss*, xxv, 402.
Antigorite, xxix, 365.
see *Serpentine*.
Antimony glance, in California, xxi, 196.
ochre (bleiniere) of Cornwall, xxiv, 113.
Antrimolite is mesolite, xxiv, 128.
Apatite, xxviii, 131, xxix, 365.
of Amberg, xxiv, 111.
angles of, *Kokscharov*, xxi, 196.
blue, of Siberia, xxvi, 347.
(hydro-apatite), xxv, 408.
of New Jersey, xxii, 249.
Aphrodite, xxv, 414.
Apophyllite, xxvi, 360.
formation of, xxv, 402.
of Lake Superior, xxviii, 9.
Aræoxene, xxvi, 347.
Aragonite, xxviii, 131, xxix, 365.
near the Arkansas, xxiv, 275, xxv, 402.
examined by *Leydolt*, xxiv, 112.
(schaumkalk), xxii, 249.
fluorine in, *G. Jenzsch*, xxi, 196.
Arfvedsonite, xxvi, 352.
Arseniuret of copper and nickel, *T. S. Hunt*, xxix, 377.
Asbolan or earthy cobalt, xxviii, 131.
Asphaltum, xxvi, 347.
Astrakanite, *v. Hauer*, xxv, 402.

MINERALS—
Astrakanite, of Mendoza, xxiv, 112.
Astrophyllite, *Scheerer*, xxii, 250
Atacamite, xxix, 365.
from Africa, xxv, 403.
of Vesuvius, xxii, 250.
Auerbachite, *Hermann*, xxvi, 347.
Augite, (pyroxene), xxi, 210.
Aurichalcite in Lancaster, Pa., xxi, 196.
Autunite, xxviii, 131.
Descloizeaux, xxv, 403, 416.
Axinite, xxix, 365.
Azurite in Phenixville, xxi, 196.
Babingtonite, xxvi, 352.
crystals of, *Dauber*, xxi, 196.
Baikerite, *Hermann*, xxvi, 347.
Barnhardtite, xxviii, 132.
Genth's remarks on, xxviii, 247.
Barytes, xxi, 196, xxviii, 132.
F. Pfaff, xxv, 403.
of Lake Superior, xxviii, 9.
pseudomorph after calcite, xxvi, 347.
Beryl, xxv, 403, 416.
crystals of, *Kokscharov*, xxi, 196.
davidsonite identical with, xxiv, 112.
Beudantite, *Dauber*, *Rammelsberg*, *Sandberger*, xxv, 403.
Bieberite from Chili, *Taylor*, xxvi, 134, 347.
Binnite, xxviii, 132.
of Binnen, xxii, 250.
see *Dufrenoysite*, xxiv, 117.
Biotite from Tyrol, xxvi, 347.
see *Mica*, xxiv, 122.
Bismuth, *F. A. Genth*, xxix, 365.
native, in Bolivia, *Genth*, xxviii, 247.
Bismuthaurite, *Shepard*, xxiv, 112.
Bismuthine, from Joachimsthal, xxv, 403.
of Riddarhyttan, *Genth*, xxiv, 113.
Bismutite, from Joachimsthal, xxv, 403.
of S. Carolina, *Genth*, xxiv, 113.
of Sweden, *Genth*, xxiii, 415.
Bitumen in California, *Blake*, xxi, 196.
in Trinidad, xxi, 196.
Bleiniere of Cornwall, xxiv, 113.
Blende, xxviii, 132.
from Clausthal, black, xxv, 404.
in Phenixville, xxi, 196.
Blœdite of Ischl, xxv, 402.
Boltonite, *G. J. Brush*, xxviii, 132.
Boracite, xxix, 365.
massive of Stassfurth, xxi, 196, xxii, 250.
Bornite, *C. T. Jackson*, xxvii, 366.
see *Tetradymite*.
Boronatrocalcite, xxii, 250.
Bournonite of Clausthal, xxv, 404.
Bragite, of Norway, xxii, 250, xxix, 382.
Braunite, xxvi, 347.
Breithauptite at Chatham, Ct., xxiv, 113.
Breunnerite (tantoclin), xxii, 251.
Brewsterite, *J. W. Mallet*, xxviii, 48.
Brewstoline, xxviii, 132.
Brochantite, xxviii, 132.
Bromyrite, *F. Field*, xxix, 366.
Brongniardite, *Damour*, xxi, 197.
Brookite of the Grieser valley, xxiv, 113.
MINERALS—
Brookite, pseudomorphous, xxvi, 347.
of the Urals, xxi, 197.
Brucite in Russia, xxi, 197.
at Wood's Mine, Pa., xxv, 107.
Buratite, xxi, 197.
Bytownite, xxi, 197.
Calamine, xxviii, 132.
crystals, *Dauber*, xxi, 197.
Calciferrite, *J. R. Blum*, xxviii, 133.
Calcite, xxii, 251, xxviii, 133.
brown, from Arendal, xxv, 404.
fluor in, xxi, 197.
limestone of Tuscan lagoons, xxv, 404.
new forms, *Q. Sella*, xxiv, 113.
screw-shape crystallization at Phenixville, xxi, 197.
from Sparta, N. J., xxi, 197, xxvi, 348.
Calcopyrite on Lake Superior, xxviii, 11.
Calderite, see *Garnet*, xxviii, 135.
Calomel, crystals of, *F. Hessenberg*, xxi, 197.
Calyptolite, an altered zircon, xxiv, 113.
Cancrinite, xxix, 366.
of Miask, analysis, xxi, 197.
Cantonite, of Canton Mine, Ga., *N. A. Pratt*, xxiii, 409, xxiv, 113.
F. A. Genth, xxiii, 415.
Carmine spar, xxvi, 348.
Caporcianite, see *Laumontite*, xxiv, 121.
Carmine Spar, xxvi, 348.
Carnallite, xxix, 366.
of Stassfurth, xxii, 251.
Cassiterite, xxviii, 133.
C. T. Jackson, xxix, 366.
of Finland, xxv, 404.
in Mexico, xxvi, 348.
Castelnaudite, see *Xenotime*, xxviii, 143.
Celestine, crystals of, xxvi, 348.
Centrallassite, *H. How*, xxix, 368.
Cerinite, *H. How*, xxix, 368, 369.
Cerite, *Rammelsberg*, xxix, 367.
Cerusite of Phenixville, xxi, 197.
Chabazite, xxvi, 360.
glottalite referred to, xxi, 197.
Chalchihuitl, of Mexico, xxv, 227.
Chalcodite, *Mallet*, xxiv, 113.
Brush, xxv, 198, 404.
Chalcopyrite, xxii, 251, xxviii, 11.
of Phenixville, xxi, 198.
Chalybite, xxvi, 348.
Rogers, xxii, 251.
locality of Baltimore ore, and in Kentucky, xxiv, 114.
of Lake Superior, xxviii, 10.
Chathamite of Shepard, xxiv, 114.
Cherokine, of Canton Mine, *Shepard*, xxii, 251.
Hunt, xxiv, 275, xxv, 404.
is pyromorphite, xxiii, 422.
Chesterlite, xxv, 410.
Chloanthite, xxv, 413.
Chlorid of iron, of Vesuvius, xxiv, 114.
Chlorite, xxix, 367,
Descloizeaux, xxv, 404.
optical characters, xxiv, 114.
like mineral with Tyrol margarite, xxiv, 114.
Chloritoid, of the Urals, xxv, 405.
Chlorophanerite, *Jenzsch*, xxii, 251.

MINERALS—
Chondrodite, xxvi, 348.
crystals of, *Nordenskiöld*, xxi, 198.
J. D. Dana, xxi, 198.
Chromic iron in California, xxi, 198.
Chrysocolla, *P. Herter*, xxix, 367.
Chili, analysis, *J. L. Smith*, xxi, 198.
on Lake Superior, xxviii, 11.
Chrysolite, *Damour*, xxiv, 114.
Eiffel, analysis, xxi, 198.
in serpentine, xxii, 251.
from Vesuvius, xxvi, 348.
Cimolite, xxviii, 133.
Cinnabar, xxix, 367.
Descloizeaux, xxv, 406.
of California, xxi, 198.
of Idria, xxiv, 114.
Clausthalite in Spain, xxvi, 348.
Clay, porcelain, of Georgia, *Mallet*, xxiv, 115.
Clayite, *W. J. Taylor*, xxix, 367.
Clinochlore, xxv, 405.
M. Sénarmont, xxi, 197.
Clintonite, pseudomorph, xxvi, 348.
Coal, xxiv, 115.
O. Matter, xxix, 367.
blowpipe assaying, *Chapman*, xxvi, 127, 348.
mineral, *T. H. Rowney*, xxi, 198.
Cobalt, black, see *Asbolan*.
Bloom, see *Erythrine*.
Cobalt-scorodite, xxviii, 142.
Columbite, xxv, 406, 416.
Bavarian, *Hermann*, *Oesten*, xxiv, 115.
composition, *Hermann*, xxi, 198.
of Greenland, xxiv, 115, xxvi, 349.
of Middletown, *Chandler*, xxiv, 115.
Conarite, *Breithaupt*, xxviii, 133.
Condurrite, xxv, 406, xxix, 367.
Conistonite and heddlite, xxii, 252.
Copiapite, *Kenngott*, xxiv, 115.
analysis, xxii, 252.
Copper and copper ores, xxi, 199.
in hexagonal prisms, xxiv, 115.
of Lake Superior, xxviii, 11.
native, of L. Superior, mercury in, xxiv, 115.
nickel, xxvi, 349, xxix, 368, 377.
pseudomorph, xxvi, 349.
Copperas, xxix, 368.
Copperasine, *Shepard*, xxviii, 133.
Coquimbite, of Vesuvius, xxii, 252.
Coracite is pitchblende, xxiii, 421, xxiv, 125.
Corundum, angle of, *Kokscharov*, xxi, 199.
Crocidolite, see *Hornblende*, xxiv, 120.
Crocoisite, xxviii, 134.
Cryolite, *Leydolt*, xxi, 199.
dimetric, xxiv, 115.
Greenland, xxii, 252.
Cyanochrome, Vesuvius, xxii, 252.
Cyanolite, *H. How*, xxix, 368.
Cyanosite, Vesuvius, xxii, 252.
Danburite, analogy to anorthite, xxiv, 115.
composition, xxi, 199.
Dannemorite, see hornblende, xxiv, 120.
Datholite, compact, *J. D. Whitney*, xxix, 369.
angles of, xxii, 252.

MINERALS—
Datholite, crystallization, *F. H. Schröder*, xxi, 199, xxvi, 349.
on Lake Superior, xxviii, 12.
is oblique, *Sénarmont*, xxiv, 115.
Davidsonite is beryl, xxiv, 112.
Dechenite, *G. J. Brush*, xxiv, 116.
Demidoffite of the Urals, xxiv, 116.
Deweylite, xxviii, 134.
Diallage, xxv, 411.
Diallogite, xxii, 253.
T. S. Hunt, xxviii, 134.
Diamond, Kohinoor, xxii, 278.
black, *Descloizeaux*, xxiv, 116.
Diaspore, see under *Natrolite*, xxix, 376.
Dolomite, xxii, 253.
Q. Sella, xxiv, 117.
J. W. Mallet, *T. S. Hunt*, *J. D. Whitney*, xxviii, 134.
coral rock of Matea, *T. S. Hunt*, xxi, 199.
Domeykite, *F. Field*, xxv, 406.
Ducktownite, *Shepard*, *G. J. Brush*, xxviii, 129.
Dufrenite, *F. A. Genth*, xxiv, 117.
of New Jersey, xxiii, 423.
Dufrenoysite, xxviii, 134.
J. C. Heusser, xxi, 199, xxii, 253.
Waltershausen, xxv, 406.
of Binnen, xxiv, 117.
Edenite, xxvi, 351.
Ehlite, xxviii, 140.
see *Phosphocalcite*.
Eisennickelkies of *Scheerer*, called nicopyrite, xxiv, 117.
Elæolite, Salem, Mass., *J. P. Kimball*, xxix, 65.
Pusirewsky, xxix, 377.
Eliasite, xxv, 415.
Ellagite, *A. E. Nordenskiöld*, xxviii, 134.
Embolite, *F. Field*, *Breithaupt*, *Domeyko*, *Brush*, xxix, 369.
Emerald of Muso, xxv, 416.
Emplektite (tannenite), xxi, 212.
Enargite, xxviii, 134.
F. A. Genth, xxiii, 420.
guayacanite, xxvii, 52.
from New Grenada, *Taylor*, xxvi, 349.
in S. Carolina, xxiv, 117.
Enstatite, new mineral, *Kenngott*, xxi, 200.
Epidote, xxviii, 135.
R. Hermann on, xxv, 406.
analyses of, *Rammelsberg*, xxiv, 117.
Scheerer, xxi, 199.
crystals of, xxvi, 349.
in N. Jersey, xxii, 253.
mangan-epidote of St. Marcel, *Deville*, xxiv, 118.
Epiglaubite, *Shepard*, xxii, 256.
Epistilbite, form and analysis, xxiv, 118.
of Iceland, xxiii, 421.
in Nova Scotia, *How*, xxvi, 33, 350.
Epsomite in Tennessee, xxii, 253.
Erubescite, in Chili, xxii, 254.
of Mexico, xxvi, 350.
Erusibite, xxviii, 129, 135.
Erythrine, from Joachimsthal, xxv, 407.
Euchroite, a mineral resembling, xxv, 407.

MINERALS—
Euclase, analyses, *Damour*, xxi, 200.
Ural crystal, xxvi, 350.
of the Urals, xxv, 416.
Eudialyte, analysis, xxiv, 118.
Eukamptite, new mineral, *Kenngott*, xxi, 200.
Eukolite, *Descloizeaux*, xxv, 407.
is eudialyte, xxiv, 118.
Eusynchite is dechenite, xxiv, 116.
Fargite, xxiv, 128.
Faroelite, *Heddle*, xxiv, 118, xxv, 407.
in Nova Scotia, *How*, xxvi, 30, 350.
Feldspar, analyses, xxi, 200.
glassy, xxii, 254.
green, xxix, 377.
(hyalophan and weissigite), xxii, 254.
see *Orthoclase*.
Felsobanyite, locality, xxi, 202.
Fergusonite, xxii, 254.
R. Weber, xxix, 370.
see *Tyrite*, xxiv, 129.
Fibroferrite, see copiapite, xxiv, 115.
Fichtelite, xxiv, 447.
T. E. Clark, xxv, 164.
Fluor crystals, *Kenngott*, xxi, 202.
Fowlerite, xxii, 260.
Franklinite, xxviii, 135.
analyses, *Rammelsberg*, *Brush*, xxix, 371.
Freieslebenite, xxii, 254.
of Spain, xxiv, 119.
Gadolinite, homœomorphous with euclase, xxiv, 119.
specific gravity, xxvi, 351.
Galactite, xxii, 255.
Kenngott, xxi, 202.
of Glen Farg, *Heddle*, xxiv, 128.
Galena, xxviii, 135, xxix, 371.
containing cadmium, xxiv, 119.
of Missouri, silver in, *Litton*, xxi, 202.
supersulphuretted, xxii, 255.
Garnet, xxviii, 135, xxix, 371.
Damour, xxiv, 119.
crystal, xxvi, 350.
green, of Norway, xxii, 255.
melanite, xxii, 255.
in Norway, analysis, xxi, 202.
rock, *Hunt*, xxv, 407.
Gases of volcanos, xxvi, 351.
Gersdorffite, xxviii, 135.
Genth, xxix, 372.
from Phœnixville, xxviii, 248.
Gibbsite, xxiv, 119.
Gieseckite, of New York, *Brush*, xxvi, 64, 350.
Gilbertite, *E. Zschau*, xxii, 255.
Glaserite, *W. J. Taylor*, xxix, 372.
at Vesuvius, xxii, 255.
Glaubapatite, *Shepard*, xxii, 256.
Glauber salt, analysis, xxi, 202.
in Nova Scotia, xxv, 407.
Glauconite, xxviii, 135.
(green sand) of Westphalia, xxi, 202.
of Westphalia; of Alabama, xxiv, 119.
Glossecollite, *Shepard*, xxiv, 124.
Glottalite (chabazite), xxi, 197.

MINERALS—
Gold, xxvii, 135.
amalgam in California, xxi, 203.
Genth's observations on, xxviii, 253.
in California, *Blake*, xxi, 203.
in Georgia, *Blake*, xxvi, 128.
in the Rocky Mts., and on Frazer's river, xxvi, 351.
in Washington Territory, xxv, 407.
Gongylite, *Thoreld*, xxviii, 135.
Gramenite, *Krantz*, xxvi, 351.
Graphite, artificial, xxiv, 119.
of Ersby, *Nordenskiöld*, xxi, 203.
of Ticonderoga, *Kenngott*, xxi, 203.
Greenlandite, xxvi, 351.
Greensand of Alabama, *J. W. Mallet*, xxiii, 182.
Guano, minerals, xxii, 255.
Guarinite, xxviii, 142.
Guayacanite, *F. Field*, xxvii, 52, 387.
see *Enargite*.
Gymnite, see *Deweylite*.
Gypsum, xxi, 203, xxii, 256, xxiv, 119.
Haidingerite at Joachimsthal, xxv, 407.
Halloysite, *Nöggerath*, xxix, 372.
Harmotome, locality of, xxv, 408.
Harrisite, xxii, 256.
F. A. Genth, xxiii, 415.
N. A. Pratt, xxiii, 409.
of Georgia, xxiv, 39, 120.
Hartite, *Kenngott*, xxiv, 120.
Hausmannite, crystal, *Kenngott*, xxi, 203.
angle of, *Dauber*, xxi, 203.
Hayesine, *Reichardt*, xxix, 372.
in Nova Scotia, xxv, 408.
Heddlite, new species, *Greg*, xxi, 203.
Hematite, xxviii, 135, xxix, 372.
of Lake Superior, xxviii, 13.
pseudomorphous octahedrons of, xxiv, 120.
(specular iron), pseudomorph, xxi, 203.
at Vesuvius, xxii, 256.
Herrerite, xxi, 203.
Herschelite, xxviii, 135.
Hessite of Russia; of California, xxiv, 120.
Heteromorphite from Peru, xxvi, 134, 351.
Heulandite, beaumontite identical with, xxiv, 120.
Hircine, *Piddington*, xxi, 203.
Hislopite, xxviii, 133.
analysis of, xxiii, 423.
Hitchcockite of *Shepard*, xxii, 256, xxiv, 41, 125, 133.
Homichline, *Breithaupt*, see *Barnhardtite*, xxviii, 132, xxix, 373.
Horn Silver, see *Kerargyrite*.
Hornblende, xxii, 257, xxviii, 135, xxix, 373.
analyses, xxi, 203.
new analyses, *Rammelsberg*, xxvi, 351.
(dannemorite), xxiv, 120.
Hunterite, xxviii, 133.
Hureaulite, crystals, xxvi, 353.
Hyalophane of *von Waltershausen*, xxv, 408, xxviii, 136.
Hydro-apatite, *Damour*, xxv, 408.
Hypersthene, xxi, 210.
Hypostilbite, xxv, 409.

MINERALS—
Hypoxanthite or Sienna earth, xxiv, 121.
Ialpaite, xxvi, 354.
Idocrase, *R. Hermann*, xxv, 406.
analyses, *Rammelsberg*, xxi, 204.
Scheerer, xxi, 204.
Ilmenite, xxv, 408, xxvii, 127, 423.
analyses of, by *Rammelsberg*, xxviii, 136.
Ilmenorutile, xxv, 412.
Iodine, free, in the fumaroles of Volcano, xxiv, 121.
Iodyrite, xxix, 373.
Iolite, xxviii, 137.
Iridium, in California gold, xxi, 205.
Iridosmine, xxix, 373.
Iron, *F. A. Genth*, xxix, 373.
meteoric, xxii, 271, 272, 374.
supposed, xxviii, 259.
native, of Bohemia, xxviii, 137.
of Canaan, Ct., *Hayes*, xxi, 157.
of Liberia, Africa, xxi, 153.
of Tennessee, *Genth*, xxviii, 246.
octahedral, of Vesuvius, *Rammelsberg*, xxviii, 135.
ores of Iron Mountain, xxvi, 354.
Iwaarite, see *Schorlomite*.
Ixiolite, xxv, 414.
see *Tantalite*.
Jaulingite, *Zepharovich*, xxi, 205.
Johannite, xxv, 415.
Junkerite, xxi, 205.
Kaolin, analyses, xxv, 408.
Kapnicite, xxviii, 137.
Kenngott, xxv, 408.
Karelinite, *R. Hermann*, xxviii, 137.
Keilhauite, xxii, 257, xxviii, 137.
Kenngottite, *Haidinger*, xxv, 409.
Kerargyrite, xxix, 374.
of Russia, xxiv, 121.
Killinite, xxii, 257.
Kokscharovite, xxvi, 354.
Krantzite, *C. Bergemann*, xxviii, 138.
Kyanite, analysis, *Igelström*, xxi, 205.
Labradorite, xxviii, 138, xxix, 374.
Lanthanite, xxii, 257.
analysis, xxiii, 425.
in Essex Co., N. Y., *Blake*, xxvi, 245, 354.
of U. States, xxiv, 43, 121.
Lapis Lazuli, xxviii, 138.
in Siberia, xxvi, 354.
Laumontite, xxv, 409.
in Nova Scotia, *How*, xxvi, 34, 354.
of the Tyrol, *Gericke*, xxiv, 121.
Lazulite, xxviii, 138.
analysis, *Igelström*, xxi, 205.
in Georgia, *C. U. Shepard*, xxvii, 36.
Lead, native, xxii, 257.
in Mexico, xxiv, 121.
Leadhillite, xxviii, 138.
Leconte, *W. J. Taylor*, xxvi, 273, 354.
Leonhardite on Lake Superior, xxviii, 14.
Lepidochlore, xxviii, 130.
Lepidomelane, xxviii, 138.
Leuchtenbergite, xxv, 404.
Leucite, *Bischof*, *Rammelsberg*, xxv, 409.
G. Rose, xxvi, 355.
of Vesuvius, xxii, 257, 272.
MINERALS—
Leucophane, *Rammelsberg*, xxiv, 121.
crystal, *R. P. Greg*, xxi, 205.
J. D. Dana, xxi, 205.
Leucopyrite, *Behncke*, xxii, 257.
Libethenite, xxix, 374.
Liebigite, xxv, 415.
Lievrite, xxv, 416.
angles of, and analysis, xxiv, 122.
Lillite, *Reuss*, xxix, 374.
Limonite, *Twomey's* analyses of, xxviii, 138.
of Lake Superior, xxviii, 14.
of Missouri, *Litton*, xxi, 205.
reference, xxiv, 122.
Linnæite of Maryland and Missouri, xxiii, 418, 419.
of U. States, *Genth*, xxiv, 122.
Liroconite, xxviii, 138.
Löweite at Ischl, xxv, 409.
Magnesite, xxix, 374.
of Bolton, Canada, xxi, 205.
of Roxbury, Vt., *Hayes*, xxi, 382.
Styria, xxii, 258.
Magnetite, xxi, 206, xxviii, 138.
(martite), xxvi, 355.
pseud. after chalybite, xxiv, 122.
Magnoferrite, *Rammelsberg*, xxix, 375.
Malachite at Phenixville, xxi, 206.
Manganblende, xxvi, 355.
Manganese ore, xxi, 206.
Manganite on Lake Superior, xxviii, 15.
Marble of Alabama, *Mallet*, xxiii, 181.
Marcasite, *v. Kobell*, xxv, 409.
of Hanover, xxii, 258.
Marcylite, *C. U. Shepard*, xxi, 206.
referred to atacamite, xxiv, 122.
Margarite, analysis by *Faltin*, xxiv, 122.
Margarodite, xxix, 375.
Marionite, *Elderhorst*, see *Zinc-Bloom*, xxix, 383.
Megabromite, *Breithaupt*, see *Embolite*, xxix, 369.
Meionite, angles, xxi, 206.
Melanchyme, *Haidinger*, xxi, 206.
Melinophane, see *Leucophane*, xxiv, 121.
Mellite, xxviii, 139.
angles, *Dauber*, xxi, 206.
Mesolite in N. Scotia, *How*, xxvi, 32, 355.
see *Scolecite*, xxiv, 127.
Miascite, xxvi, 355.
Mica, xxiv, 122.
angles, analyses, etc., xxi, 206.
of Goshen, *J. W. Mallet*, xxiii, 180.
after scapolite, xxiv, 123.
pseudomorph after orthoclase, xxiv, 123.
Microcline, xxviii, 139.
angles, *Breithaupt*, xxvi, 355.
Mikrobromite, *Breithaupt*, see *Embolite*, xxix, 369.
Millerite, form, *Kenngott*, xxi, 206.
Mimetene, at Phenixville, xxi, 207.
Mispickel, xxix, 375.
analysis, xxv, 410.
Behncke, xxii, 258.
of Copiapo, analysis, xxi, 207.
Misy, see *Copiapite*.
Molybdate of iron, xxi, 207.
Genth, xxix, 376.
from California, *Genth*, xxvii, 248.

MINERALS—
Molybdenite, xxviii, 139.
crystals, xxiv, 123.
Molybdine, xxvi, 355.
Monazite, xxii, 262.
E. Zschau, xxv, 410.
Morenosite, *Casares*, xxi, 207.
Moronolite, *Shepard*, xxiv, 123.
Mossottite, xxix, 376.
Muscovite, xxi, 206.
crystals from Vesuvius, xxvi, 356.
Nagyagite, *Folberth*, xxix, 376.
Naphtha, xxi, 207, xxv, 410.
Natro-boro-calcite in Nova Scotia, xxv, 408.
H. How, xxiv, 230.
Natrolite, xxviii, 139.
Hlasiwetz, xxix, 376.
Savite is, xxvi, 356.
Neotokite, xxviii, 139.
Nepaulite, *Piddington*, xxiv, 123.
Nepheline, xxix, 377.
angles, *Kokscharov*, xxi, 207.
Nickel and copper, arseniuret of, on Lake Superior, xxviii, 15.
ores, *C. Bergemann*, xxviii, 139.
oxyd of, xxviii, 139.
Nickel-gymnite, *T. S. Hunt*, xxix, 277.
W. J. Taylor, xxviii, 139.
Nicopyrite or eisennickelkies, xxiv, 117.
Nitrammite, xxiv, 124.
Nitre, in Tennessee, xxii, 258.
Nordenskiöldite, xxi, 204.
Okenite, analyses, xxi, 207.
Oligoclase, *vom Rath*, xxix, 377.
of Danbury, *Brush*, xxvi, 70.
Opal, xxiv, 124.
artificial, xxvi, 356.
in Moravia, xxii, 258.
Ophiolites, *T. S. Hunt*, xxvi, 234.
Orthite, analysis of, xxix, 364.
Orthoclase, xxi, 201, xxviii, 140.
Breithaupt, xxv, 410.
J. D. Whitney, xxix, 377.
of Binnen Valley, xxvi, 356.
at Danbury, Ct., xxvi, 70, 356.
of Lake Superior, xxviii, 16.
Oserskite, see *Aragonite*, xxix, 365.
Osteolite, xxviii, 140.
Ostranite, xxi, 207.
Ozocerite, xxvi, 356.
Glocker, xxii, 258.
Paisbergite, xxii, 259.
crystals, *Dauber*, xxi, 207.
Palladium ochre, or palladinite, xxiv, 124.
Paraffine, native, xxi, 207.
Paralogite, xxvi, 356.
Parasite, *Volger*, xxiv, 124.
Parastilbite, *von Waltershausen*, xxiv, 124.
Parathorite, *Shepard; Dana; Brush*, xxiv, 124.
Pateraite, xxii, 258.
Pectolite, xxii, 258, xxviii, 140.
J. D. Whitney, xxix, 205, 377.
analyses, xxi, 208.
crystallization, xxvi, 356.
Pelicanite, xxviii, 140.
Pennine, xxi, 209, xxv, 404.
V. Merz, xxix, 378.
MINERALS—
Pennine, see *Chlorite*, xxiv, 114.
Perofskite, xxvi, 356, xxviii, 140.
crystals, etc., *Damour*, xxi, 209.
of Zermatt, xxiv, 124.
Phenacite, crystals, *v. Kokscharov*, xxv, 410.
optical characters, xxvi, 356.
Phlogopite in Europe, xxvi, 356.
Pholerite, *Genth*, xxviii, 251, xxix, 378.
Phosphochalcite, xxvi, 356, xxviii, 140, xxix, 378.
Heddle, xxi, 209.
Piauzite, xxii, 258.
Kenngott, xxiv, 125.
Pieromerid, at Vesuvius, xxii, 258.
Pinguite, in Moravia, xxii, 258.
Pitchblende, xxv, 415, xxix, 378.
coracite identical with, xxiv, 125.
Pittinite, see *Pitchblende*, xxix, 378.
Plagionite, crystals, xxi, 209.
Platinum, xxvi, 357.
Deville and *Debray*, xxix, 379.
of Borneo, xxii, 259.
in California, xxi, 209.
Plombierite, xxvi, 360.
Plumbic ochre of New Mexico, xxiv, 125.
Plumbo-resinite, hitchcockite referred to, xxiv, 125.
of Canton Mine, xxiv, 41, 125.
Polyhalite, analysis, *Jenzsch*, xxi, 209.
Porcelain clay of Alabama, *J. W. Mallet*, xxiii, 183.
Prehnitoid, *Blomstrand*, xxi, 209.
Prosopite, xxi, 209.
Scheerer, *Brush*, *Dana*, xxv, 410.
Pseudophite, *Kenngott*, xxi, 210.
Pyrargyrite and proustite, crystals, *Sella*, xxiv, 126.
Pyrgom, xxviii, 141.
Pyrites, *G. Rose*, xxix, 379.
Traversella twins, *Sella*, xxiv, 126.
Pyrochlore, xxi, 199.
of Miask, xxiv, 126.
Pyroclasite, *Shepard*, xxii, 97.
Pyroguanite minerals, xxii, 96.
Pyromelane, *Shepard*, xxii, 96, 259, xxiv, 126.
Pyromorphite, *Struve*, xxix, 379.
altered, xxiv, 126.
at Phenixville, xxi, 209.
Pyrophyllite, xxviii, 140.
Descloizeaux, xxv, 411.
compact, *Brush*, xxvi, 68, 357.
in Georgia, *Shepard*, xxvii, 36.
Pyroretin is scleretinite, xxi, 210.
Pyrosclerite, *Descloizeaux*, xxv, 411.
of Snarum, xxii, 259.
Pyrotechnite, xxii, 261.
Pyroxene, xxviii, 140, xxv, 411.
Rammelsberg, xxvi, 357.
Reuss, xxix, 379.
analysis, *Kjerulf*, xxi, 210.
Pyrrhotine, xxi, 210, xxix, 379.
meteoric, xxii, 375.
Quartz, *Blum* and *Carius*, xxix, 379.
density before and after heating, xxiii, 210.
in capillary forms, etc., xxii, 259.
a peculiar form, xxviii, 141.

MINERALS—
Quartz, planes of, from *Descloizeaux*, xxiv, 126.
Quicksilver in drift deposits, xxii, 259.
Rastolyte of *Shepard*, see *Stilpnomelane*, xxiv, 128.
Realgar, xxix, 379.
crystals, xxvi, 357.
Rensselærite, xxv, 414.
Retzbanyite, *R. Hermann*, xxviii, 141.
Rhodonite, *Greg*, xxii, 259.
Rhombic tungstate of lime, xxviii, 252.
Ripidolite, xxv, 404.
Genth, xxviii, 250, xxix, 379.
Rœmerite, *Grailich*, xxvi, 357.
Röttisite, *Breithaupt*, xxviii, 141.
Rutile, xxviii, 141.
(ilmenorutile), xxv, 412.
in Georgia, *Shepard*, xxvii, 36.
Sal-ammoniac, xxii, 260.
Salt in California, xxi, 210.
Cheshire brine springs, xxv, 412.
borings in Kentucky, xxiv, 127.
at Vesuvius, xxii, 260.
Samarskite, *Hermann*, xxi, 199.
analysis, *Hermann*, xxiv, 127.
density, xxvi, 357,
Saponite, xxviii, 141, xxix, 380.
Sarcolite, angle, *Kokscharov*, xxi, 210.
crystal, xxvi, 357.
Sassolin, crystals, xxiv, 127.
Saualpite, xxix, 380.
Saussurite, xxv, 437.
T. S. Hunt, xxvi, 358, xxvii, 336, xxviii, 141.
composition, xxi, 211.
of Silesia, *Chandler*, xxiv, 127.
Savite, xxvi, 358.
Breithaupt, xxiv, 127.
Scapolite, angle, *Kokscharov*, xxi, 211.
glaucolite identical with, xxv, 412.
wilsonite identical with, xxi, 211.
Scheelite, *Genth*, xxviii, 252, xxix, 380.
Scheererite, form, *Kenngott*, xxi, 211.
Schorlomite, xxviii, 141.
Shepard, xxiv, 127.
Schrötterite in Alabama, *Mallet*, xxvi, 79, 358.
Scleretinite, xxi, 210.
Scleroclase, see *Dufrenoysite*, xxiv, 117.
Scolecite, *Heddle*, xxiv, 127.
formation of, xxv, 412.
Scorodite, xxviii, 142.
Seladonite, of Bohemia, xxvi, 358,
Senarmontite, of Algeria, xxiv, 128.
Sericite slate, rock resembling, xxiv, 273.
Serpentine, xxv, 217, 412, xxviii, 142, xxix, 380.
T. S. Hunt, xxvi, 358.
analyses, *S. Houghton*, xxi, 211.
and antigorite, xxiv, 128.
on Lake Superior, xxviii, 18.
rock, analyses, *A. A. Hayes*, xxi, 382.
of Roxbury, Ct., xxii, 260.
of Syracuse, N. Y., xxv, 412.
Sideroplesite, xxvi, 358.
Siegenite of Maryland and Missouri, xxiii, 419.
of Mine la Motte, Missouri, xxiii, 419.
MINERALS—
Silver glance, xxvi, 358.
at Joachimsthal, xxv, 413.
of Lake Superior, xxviii, 19.
native, at Cheshire, Ct., xxii, 260.
ores of Chili, xxi, 211.
pseudomorph, xxv, 413.
Smaltine from Atacama, *J. L. Smith*, xxi, 211.
crystals with convex faces, xxi, 211.
at Joachimsthal, xxv, 413.
Smaragdite, *T. S. Hunt*, xxvii, 348, xxviii, 140.
Smithsonite, xxviii, 142, xxix, 380.
under the form of dolomite, xxi, 427.
pseudomorphs, xxii, 260.
Sodalite, xxvi, 358.
in Russia, xxi, 211.
from Salem, Mass., *J. P. Kimball*, xxix, 65, 380.
Sordawalite, analysis, xxi, 211.
Spartaite, xxvi, 358.
Specular iron, xxii, 256.
see *Hematite*.
Sphene, xxviii, 142.
decomposed, (xanthitane), xxii, 260.
Spinel in Russia, xxi, 211.
Spreustein, *Scheerer*, see *Natrolite*.
Stannite, *Bischof*, xxii, 260.
Stassfurtite, xxiv, 128.
see *Boracite*, xxix, 365.
Staurotide, Georgia, xxii, 260.
Steinmannite, see *Galena*.
Stephanite, crystal, *Schröder*, xxi, 211.
Stibnite, xxii, 261.
Stilbite, xxviii, 142.
analysis, xxvi, 358.
from Hindostan, xxv, 413.
(hypostilbite), xxii, 179, 261.
Stilpnomelane, *Glocker*, xxii, 261.
and rastolyte, xxiv, 128.
Stromeyerite, *W. J. Taylor*, xxix, 380.
Sulphur in California, xxi, 211.
Sundvikite, *A. E. Nordenskiöld*, xxviii, 142.
Svanbergite, *Dauber*, xxv, 413.
Igelström, xxi, 211.
Sylvine at Vesuvius, xxi, 212.
Tachhydrite, *Rammelsberg*, xxiv, 129.
Talc, *T. S. Hunt*, xxv, 225.
potstones, *Delesse*, xxv, 413.
rensselaerite, *Hunt*, xxv, 414.
Talkoid, *Naumann*, xxix, 381.
Tannerite, xxi, 212.
Tantalite, *A. E. Nordenskiöld*, xxv, 414, xxix, 381.
Rose, xxvi, 359.
of Chanteloube, *Chandler*, xxiv, 129.
constitution of, xxvii, 125.
of Kimito, *Hermann*, xxiv, 129.
of Limoges, xxii, 261.
Tarnowitzite, xxviii, 131.
Tauriscite, *Volger*, xxi, 212.
Telluret of silver in California, *W. P. Blake*, xxiii, 270.
Telluric silver, see *Hessite*, xxiv, 120.
Tennantite, xxi, 212.
Vom Rath, xxix, 381.

MINERALS—
Tetradymite from Dahlonega, Ga., *C. T. Jackson*, xxviii, 142.
in Georgia, *Shepard*, xxvii, 39, xxviii, 142.
Tetrahedrite, *C. Kuhlmann*, xxv, 414.
analyses, xxi, 212.
Thenardite of Vesuvius, xxii, 261.
Thermophyllite of *Nordenskiöld*, xxvi, 359, xxviii, 143.
Thorite (orangite) crystals, xxvi, 359.
Titanic iron, *Igelström*, xxi, 212.
see *Ilmenite*.
Tombazite, *Kenngott*, xxi, 212.
Topaz, crystals of, *Kokscharov*, xxiv, 129.
Torbanite, xxvi, 359.
Tourmaline, xxi, 212, xxiv, 129, xxviii, 143.
Jenszch, xxix, 381.
Traversellite, xxviii, 140.
Trichalcite of *Hermann*, xxvi, 360.
Triphyline, *F. Oesten*, xxix, 381.
Tritomite, analysis, xxii, 261.
Tscheffkinite, xxii, 261.
Tungstate of lime, rhombic, *Genth*, xxviii, 252.
Turquois, xxv, 414.
Tyrite, xxii, 261.
D. Forbes, xxiv, 129.
Potyka, G. J. Brush, xxix, 381.
Uigite, *Heddle*, xxv, 414.
Unionite is epidote, xxvi, 69, 360.
Uranbloom, xxv, 415.
Urangreen, xxv, 415.
Uraniobite, see *Pitchblende*, xxix, 125.
Uranite, *Descloizeaux*, xxiv, 130.
Uranium ores, xxv, 415.
silicates of, xxix, 382.
Uranochalcite, xxv, 415.
Hermann, xxix, 382.
Uranochre, xxv, 415.
Urdite, *Forbes*, xxii, 262, xxv, 410, 416.
Vanadate of lead, of Phenixville, xxi, 212.
Vanadinite, *Rammelsberg, Kenngott, Schabus*, xxiv, 130.
Kokscharov, xxix, 382.
of Carinthia, xxii, 262.
Vauquelinite, *W. J. Taylor*, xxviii, 143.
Vestan, xxviii, 141.
Vivianite, xxii, 262, xxix, 382.
in human bones, *Nicklès*, xxi, 402.
of N. Jersey, xxiii, 422, xxiv, 130.
Voigtite, *E. E. Schmid*, xxii, 262.
Völknerite, *Rammelsberg*, xxii, 263.
Voltzine from Joachimsthal, xxv, 416.
Vorhauserite, *Kenngott*, xxviii, 143.
Vosgite, xxi, 201.
Warwickite, xxiv, 130.
Water of Dead Sea, xxix, 382.
Wavellite, xxviii, 143.
of Chester Co., Pa., xxiii, 423, xxiv, 130.
Websterite, xxii, 212.
Weissigite on Lake Superior, xxviii, 18.
Whitneyite, *Genth*, xxviii, 143.
Genth's remarks on, xxviii, 247.
Wilsonite, xxi, 213.
Witherite (Thomson's sulphato-carbonate), xxv, 416.
MINERALS—
Wittichite, xxii, 263.
Wölchite, form and composition, xxi, 213.
Wolfram, xxi, 213, xxii, 263.
Genth, xxviii, 253, xxix, 382.
of Zinnwald, xxiv, 130.
Wollastonite of the Morne Mts., xxi, 213.
Wulfenite, xxix, 383.
Descloizeaux, xxv, 416.
of Phenixville, xxi, 213.
Xenotime, xxii, 263, xxviii, 143.
twin with malacone, xxi, 213.
Yttroilmenite, xxi, 199.
Yttrotantalite, *Chandler*, xxiv, 131.
Zamtite, *Casares*, xxi, 213.
Zeolite of Skye, *Mallet*, xxiv, 121.
Zeolites, *Damour* on, xxv, 416.
of Lake Superior, xxviii, 19.
of Plombières, *Daubrée*, xxvi, 360.
Zeolitic mineral from the Isle of Skye, *Mallet*, xxii, 179.
Zeuxite, xxi, 213.
Zinc, xxviii, 143.
Zinc-bloom, xxviii, 144.
Elderhorst, G. J. Brush, xxix, 383.
Zincite (red zinc ore), xxi, 213, xxii, 263.
Zippeite, xxv, 415.
Zircon from Brazil; of North Carolina, xxiv, 131.
Mississippi River, times of closing and opening, *T. S. Parvin*, xxii, 149.
Mitchell, E., death of, xxiv, 299.
Mitchell, R. W., on aurora of 1859, xxx, 357.
Mohl, H. von, cause of opening and closing of stomates, xxiii, 280.
Mölhausen, Journey west of the Mississippi, xxvi, 224.
Molybdenum, fusion of, xxvi, 402.
Moon, on absence of atmosphere, xxiv, 416.
color during eclipses, xxiii, 444.
Secchi's drawing of, xxii, 265.
Morfit, C., on brown sugar, xxv, 393.
Chemical and Pharmaceutical Manipulations, noticed, xxiii, 149.
photographic micrometer, noticed, xxx, 156.
ultimate analyses of animal oils, xxi, 133.
Morlot, A., general views of Archæology, xxix, 25.
Morris, O. W., on aurora of 1859, xxx, 343, 353.
Mortars, *von Fuchs* on, xxiii, 225.
Mortillet, on fold in strata of Petit-Cœur, xxix, 121.
Motor for submarine tunnel, xxvi, 98.
Mountains of N. Carolina, *Guyot*, xxiv, 277.
of N. Carolina and Tennessee, *S. B. Buckley*, xxvii, 286.
see *Height*.
Mud shower at Corfu, xxvii, 302.
Mueller, C., Synopsis Plantarum, &c., noticed, xxiv, 286.
Müller, F., Fragmenta Phytographiæ Australiæ, xxviii, 290.

Murchison, *Sir R. I.*, anniversary address before Geographical Society, xxviii, 303.
discoveries of *Burton* and *Speke*, xxviii, 412.
fold in strata of Petit-Cœur, xxix, 121.
Geology of North Highlands, &c., xxi, 276.
letter on the Museum of Practical Geology, xxii, 232.
notice of *Marcou's* Dyas and Trias, xxviii, 256.
on the Palliser expedition, xxviii, 341.
Muscles, composition of, *Valenciennes*, xxii, 9.
Muscular contraction, induced by vibrations, *O. N. Rood*, xxix, 449.
Museum of Comparative Zoology in Harvard University, xxvii, 295, 450.
Museums of Nat. History, British, xxvii, 277.
Mushrooms, ozonic actions with, xxi, 418.

N.

Naudin's Researches, &c., noticed, xxiv, 440.
Nebraska, Cretaceous, *J. Hall*, xxiv, 72, 275.
explorations in, *F. V. Hayden*, xxix, 286.
fossil mammals, xxi, 422.
fossils, xxii, 118, 423.
geology and fossils, *Meek* and *Hayden* xxv, 439.
organic remains, *Hayden*, xxvi, 116.
rocks and fossils, *Hayden*, xxvi, 276, 404.
Nebular hypothesis, *Helmholtz*, xxiv, 203.
D. Kirkwood, xxx, 161.
Neese, *N.*, on rectifying sulphuric acid, xxx, 267.
Neisler, *H. M.*, on the common cane, xxx, 14.
Neo-macropia, xxii, 301.
Nervous action, rapidity of, xxiv, 445.
New Grenada, new divisions of, xxvi, 94.
expedition to, xxvi, 370.
New Jersey, 3d Annual Geol. Rep. of, noticed, xxiv, 433.
New South Shetlands, Crustacean from, and remarks on, xxii, 394.
New York harbor encroachments, *A. D. Bache*, xxiii, 16.
New Zealand, changes of level at, xxii, 128.
new Dinornis of, *Owen*, xxii, 138.
Newberry, *J. S.*, ancient vegetation of N. Am., xxix, 208.
on aurora of 1859, xxx, 347, 356.
coal, formation of cannel, xxiii, 212.
explorations, &c., xxix, 144.
in N. Mexico, xxviii, 298, 450.
fossil fishes of Ohio, xxiv, 147.
Geol. Rep. on California and Oregon, noticed, xxvi, 123.
Newberry, *J. S.*, note in reply to Lesquereux on the Am. Cretaceous, xxx, 273.
Newberry, *J. S.*, Reports on Geology, Botany and Zoology of N. Carolina and Oregon, noticed, xxviii, 152.
Newton, *Lord Brougham* on, xxvii, 40.
Newton, *H. A.*, on the gyroscope, xxiv, 253.
on meteor of Nov. 1859, xxx, 186.
Niagara, *R. Bakewell* on, xxiii, 85.
Nickel, equivalent of, xxiv, 427.
Schneider, xxv, 438.
sulphate of, xxii, 108.
Nicklès, *E.*, on amorphous phosphorus, xxii, 244.
Nicklès, *J.*, bibliographical notices, xxv, 451, xxviii, 159, 431, xxix, 420.
correspondence of, xxi, 117, 254, 403, xxii, 99, 264, xxiii, 102, 440, xxiv, 255, 408, xxv, 91, 433, xxvi, 97, 259, 393, xxvii, 117, 252, xxviii, 119, 424, xxix, 266, 410, xxx, 409.
electro-magnets and magnetic adhesion, xxvii, 122, xxx, 413.
fluoriferous sulphuric acid, xxiv, 397.
fluorine, xxiv, 395.
in blood, xxiii, 101.
diffusion of, xxvii, 118.
magnetic phantoms, on fixing, xxx, 62.
motor for submarine tunnel, xxvi, 98.
privet, coloring matter of, xxix, 326.
saponite, xxviii, 141.
vivianite in human bones, xxi, 402.
Niger, Baikie's expedition to the, xxix, 89.
Nile, sources of, xxviii, 411, xxix, 86.
Niobium, *Rose* on, xxvii, 126.
Nitrates, *J. M. Ordway* on, xxvii, 14.
Nitric acid, action of, on the metallic chlorids, *H. Wurtz*, xxvi, 81, 188.
Nitrogen, specific volume of compounds containing nitrogen, xxii, 108.
Nomenclature, botanical and zoological, *W. Stimpson*, xxix, 289.
Norris, *J. H.*, on aurora of August, 1859, xxix, 95.
North Carolina, fossils of, *Leidy*, xxiii, 271.
hailstorm in, xxii, 298.
North pole, open sea of, *R. W. Haskins*, xxv, 384.
passage to, *Hayes*, xxv, 384.
Norton, *W. A.*, on comets, aurora borealis and zodiacal light, xxvii, 86.
on Donati's comet, xxix, 79, 383.
Novara, voyage around the world by the, xxix, 400.
Nova Scotia, modern submerged forest in, xxi, 440.
natro-borocalcite, *H. How*, xxiv, 230.
Numbering of the asteroids, xxviii, 153.
Numbers, in phyllotaxis and the order of the planets, xxv, 215.
Nuttall, T., death of, xxviii, 444, xxix, 441.

O.

Oatley, *H.*, on aurora of 1859, xxx, 351.
OBITUARY—
of C. Agardh, xxix, 441.
J. W. Bailey, xxiii, 447.
T. R. Beck, xxi, 152.
J. P. M. Binet, xxii, 264.
B. Bisasoletto, xxvii, 442.

OBITUARY—
W. Bojer, xxiii, 148, 279.
C. L. Bonaparte, xxiv, 299.
W. C. Bond, xxvii, 303.
A. Bonpland, xxvi, 301, xxvii, 442.
H. Braconnot, xxi, 118.
R. Brown, xxvi, 279, xxvii, 442, xxviii, 161.
W. Buckland, xxii, 449.
A. Cauchy, xxiv, 408, xxv, 91.
A. Chenot, xxi, 254.
P. Cleveland, xxvi, 448.
A. Colla, xxiv, 408.
W. D. Conybeare, xxvii, 63.
J. Deane, xxvi, 155.
S. G. Deeth, xxv, 450.
A. N. Desvaux, xxv, 293.
E. Desvaux, xxv, 293.
L. W. Dillwyn, xxv, 293.
G. Don, xxiii, 279.
Dozy, xxiii, 279.
P. A. Dufrenoy, xxiv, 160.
Dunal, xxiii, 279.
G. A. Eisengrein, xxvii, 443.
C. G. N. von Esenbeck, xxvii, 443.
J. P. Espy, xxix, 304.
H. D. A. Ficinus, xxv, 293.
H. Galeotti, xxvii, 443.
C. Girou, xxv, 293.
C. Goodyear, xxx, 160.
J. Grailich, xxviii, 451.
M. Graves, xxv, 293.
W. Gregory, xxvi, 155.
Mrs. Griffiths, xxv, 294.
W. T. Gumbel, xxvii, 443.
T. W. Harris, xxi, 300.
J. F. L. Hausmann, xxix, 304.
A. Henfrey, xxix, 441.
N. M. Hentz, xxiii, 148.
W. P. Holmes, xxx, 424.
T. Horsefield, xxviii, 444, xxix, 441.
A. von Humboldt, xxviii, 96, 164.
Madame de Jussieu, xxv, 293.
C. de Latour, xxviii, 424.
A. L. S. Lejeune, xxix, 441.
Liebmann, xxiii, 279.
J. Locke, xxii, 301.
Mrs. J. C. Loudon, xxvii, 443.
Magendie, xxi, 117.
W. W. Mather, xxvii, 452.
E. H. F. Meyer, xxvii, 443.
F. A. Michaux, xxiv, 161.
H. Miller, xxiii, 294.
E. Mitchell, xxiv, 299.
C. F. A. Morren, xxvii, 443.
J. B. Mougeot, xxvii, 443.
J. Müller, xxvi, 155.
E. D. North, xxvi, 155.
T. Nuttall, xxviii, 444, xxix, 441.
D. Olmsted, by *C. S. Lyman*, xxviii, 109.
A. D'Orbigny, xxvii, 71.
Peclet, xxv, 430.
J. G. Percival, xxii, 150.
C. F. Plattner, xxv, 450.
L. Poinsot, xxix, 415.
B. Powell, xxx, 160.
W. C. Redfield, xxiii, 292.
W. Reid, xxvii, 153.
C. Ritter, xxviii, 451.
J. F. Royle, xxv, 294.
OBITUARY—
A. Sauvage, xxvi, 393.
L. F. Sauvage, xxvi, 393.
W. Scoresby, xxiii, 448, xxvi, 300.
D. Sharpe, xxii, 152.
E. G. Steudel, xxiii, 279.
Sturm, xxi, 254.
Thenard, xxiv, 408, xxv, 430.
Z. Thompson, xxi, 301, xxii, 44.
W. G. Tilesius, xxv, 293.
D. Townsend, xxvii, 443.
T. Tozetti, xxv, 293.
M. Tuomey, xxiii, 448.
D. Turner, xxvii, 443.
W. W. Turner, xxix, 152.
J. W. Wallroth, xxv, 293.
J. C. Warren, xxii, 151.
Wikström, xxiii, 279.
G. Wilson, xxix, 152.
G. Wurdemann, xxix, 304.
W. Yarrell, xxiii, 148.
C. Zeyher, xxvii, 443.
Object-glass, large, *A. Clark*, xxix, 449.
Observatory at Albany, xxii, 442.
at Paris, xxii, 265, xxiii, 444.
Annals of, xxii, 265.
at University of Mississippi, xxii, 290.
Occultations of stars by the moon and planets, enquiries concerning, *A. C. Twining*, xxvi, 15.
Ocean currents, *J. D. Dana*, xxvi, 231.
E. B. Hunt, xxvii, 169, 206.
northern, xxiv, 237.
depth of N. Pacific, xxv, 83.
infusoria in, xxvi, 387.
routes between England and Am., xxvi, 86.
soundings in, *W. P. Trowbridge*, xxvi, 157, 386.
Odors of perfumes, xxviii, 427.
Oils, ultimate analyses of animal, *F. H. Alexander* and *C. Morfit*, xxi, 133.
Olmsted, D., biographical sketch of, xxviii, 109.
memoir of W. C. Redfield, xxiv, 355.
Ondarza's new map of Bolivia, xxviii, 95.
Ordway, J. M., on nitrates, xxvii, 14.
soluble basic sesquisalts, xxvi, 197.
soda, new mode of making commercial caustic, xxvi, 364.
on some soluble salts of tin, xxiii, 220.
Oregon, new ferns, *D. C. Eaton*, xxii, 138.
Organic acids, two new series of, *Heintz*, xxix, 272.
compounds, constitution of, *Gibbs*, xxv, 18.
containing metals, *Frankland*, xxiii, 269.
morphology, *J. Warner* on, noticed, xxiv, 443, xxv, 151.
Organo-thionic acids, new series of, xxiv, 142.
Oriental Society, Journal of, xxviii, 450.
Ornithichnites, *R. Field*, xxix, 361.
Osmious acid, *J. W. Mallet*, xxix, 49.
Osmium and elements of ammonia, a new base containing, xxv, 248.
Otto, manual on poisons, noticed, xxiv, 160.
Owen, D. D., Geol. Rept. on Ky., noticed, xxiii, 272, xxv, 283, 447.

Owen, D. D., survey of Ky., xxix, 287.
Owen, R., address before the British Association, xxvi, 421.
classification of mammals, xxv, 7, 177.
on Odontology, noticed, xxvii, 148.
on the aboriginal ruminants of Britain, xxiii, 132.
Owen, R., (of Tennessee), coast lines of continents, xxiv, 433, xxv, 130.
Key to the Geology of the Globe, noticed, xxiv, 158.
Oxalate of iron, action of light on, xxv, 102.
Oxyd, on determining strong or weak basic properties of, *H. Rose*, xxi, 130.
Oxygen, *Schönbein* on, xxvii, 19.
new bases containing, *Wurtz*, xxix, 426.
Oyster banks of France, mode of re-supplying, xxvi, 261.
Oysters, green gilled, *Taylor*, xxv, 294.
Ozone and antozone, *Schönbein*, xxvii, 19.
on atmospheric, *Scoutetten*, xxii, 140.
W. B. Rogers, xxii, 141.
Andrews, xxii, 403.
and ozonic actions in mushrooms, *Schönbein*, xxi, 418.
work by *Scoutetten* on, noticed, xxiii, 446.
Ozonometry in the Crimea, xxvii, 254.

P.

Pacific ocean, depth of, xxv, 83.
railroad surveys, noticed, xxvi, 92.
Palæontology, see *Geology*.
Palæoscincus, fossil reptile, xxii, 118.
Palæotrochis of Emmons, xxiv, 151.
Palæozoic strata of Great Britain, *Prof. Sedgwick*, xxi, 343.
Palliser expedition, xxviii, 341.
Paper, plants that can furnish, *de Claussen*, xxi, 290.
papyrine, vegetable parchment, xxix, 278.
Paraselena, *J. M. Gillis*, xxx, 304.
Parchment, vegetable, xxix, 278.
Paris Geographical Society, xxii, 148.
Parrish, E., Int. to Prac. Pharmacy of, noticed, xxix, 304.
Parsons, T., on origin of species, xxx, 1.
Parthenogenesis, *Owen* on, xxvi, 425.
E. Regel on, xxvii, 310, 440.
observations on, *Burnett*, *Siebold*, *Lubbock*, *Dana*, xxiv, 399.
Parvin, T. S., climate of Iowa, xxiii, 360.
closing and opening of Mississippi, xxii, 149.
Passes of the Rocky Mountains, report on two new, xxviii, 320.
Pasteur on fermentation, xxix, 411.
Patent Office Report for 1855, xxiii, 150.
for 1856, noticed, xxiv, 448.
Payen and *Fremy* on cellulose, xxviii, 123.
Payen's Chemie Industrielle, noticed, xxi, 261.
and *Richard's* Précis d'Agriculture, noticed, xxvii, 259.
Payen's Substances Alimentaires, noticed, xxi, 261.
Peat bogs of Bohemia, xxi, 442.
Peck, Wm. G., Elements of Mechanics, noticed, xxviii, 303.
Peclet, obituary notice of, xxv, 430.
Peirce, on the direction of the coast-lines of continents, xxiv, 433.
Pendulum, on the, *F. A. P. Barnard*, xxvii, 184.
Percival, J. G., obituary of, xxii, 150.
Perfumes, industry of, xxiii, 109.
Periosteum, transplantation of, *Ollier*, xxix, 413.
Perkins, H. C., on aurora of 1859, xxix, 254.
Permian, see *Geology*.
Peru, mineral coal in, xxii, 274.
Petermann's Geographical Journal, noticed, xxv, 305.
Peters, T. M., meteor of July, 1856, xxiii, 287.
Petitjean's process for silvering glass, xxiv, 268.
Phelps, W. W., on aurora of 1859, xxx, 343, 352.
Phosphatic nodules, analysis of, xxiv, 112.
Phosphorescence, xxix, 420.
influence of temperature on, xxvi, 399.
Phosphoric acid, on separation of, *Chancel*, xxx, 122.
on test with molybdate of ammonia, *J. H. Bill*, xxvi, 109.
Phosphorus, amorphous, *E. Nicklès*, xxii, 244.
detection of, in poisoning, xxii, 107.
new bases containing, *Cahours* and *Hofmann*, xxi, 416.
reproduction of engravings by, xxvii, 258.
Photochemical experiments, *Neipcé de St. Victor*, xxvii, 257.
researches, *N. de St. Victor*, xxix, 271.
Photographic process with wax paper, *W. Crookes*, xxii, 159.
Photographs, artificial light for, xxii, 301.
Photography by carbon, xxviii, 429.
exhibition of, xxiii, 115.
injury from effluvia, xxvi, 397.
at Paris, xxiv, 261.
new process in, xxvi, 397.
Photometer, a new, *Silliman* and *Porter*, xxiii, 315.
Physionometer, invention of, xxvi, 397.
Picric acid and its salts, *M. C. Lea*, xxvi, 379.
optical properties of, *Lea*, xxx, 402.
Piesse, G. W. S., Art of Perfumery, by, noticed, xxii, 150.
Piggot, A. S., on the Chemistry and Metallurgy of Copper, noticed, xxv, 446.
on guano, xxiii, 120.
Pisciculture, *Jourdier* on, noticed, xxi, 408.
Planet, supposed new, between Sun and Mercury, *E. C. Herrick*, xxviii, 445, xxix, 296, 415.
Liais questions Lescarbault's discovery of, xxx, 142.
Planetary system, observations on, *Helmholtz*, xxiv, 203.
Planets, law of phyllotaxis among, xxv, 215.
new, see (under *Astronomy*,) *Asteroids*.

Planets, note on recent discoveries of, xxiv, 415.
Plants, alternations of generations, &c., among, xxi, 62.
created, for what, *A. Gray*, xxi, 428.
DeCandolle's Geography of, noticed, xxii, 429.
embryo of, xxii, 432.
hybrids among, *Hooker*, xxi, 135.
turf, of the Arctic, xxiv, 242.
vegetable individual in its relation to species, *Braun*, xxi, 58.
see farther, *Botany*.
Platinum, alloys of, new xxix, 270.
fusion and casting of, *Deville* and *Debray*, noticed, xxx, 158.
and the metals which accompany it, xxix, 113.
analysis of, xxix, 379.
chemistry of, *Claus*, xxix, 425.
researches on, *W. Gibbs*, xxix, 427.
Playfair, on numerical relations between densities and equivalents of bodies, xxx, 420.
Plücker, mag. induction of crystals, xxv, 272.
Plumb-line, secular changes in, xxv, 107.
Poey, A., on aurora of Aug. 1859, xxviii, 403.
on aurora of 1859, xxix, 264.
hurricanes, list of cyclonic, noticed, xxii, 452.
Poinsot, death of, xxix, 415.
Poisons in China, *Macgowan*, xxvi, 225.
Polar Sea, open, *G. F. Harrington*, xxvi, 448.
R. W. Haskins, xxv, 84.
I. I. Hayes, xxv, 384, xxvi, 305.
Polarization of light, *Stokes*, etc., on, xxiv, 420.
Polarized light, directions of vibrations of ether in, *Haidinger*, xxi, 125.
direction of molecular motion in plane, *Bartlett*, xxx, 361.
for the microscope, *White*, xxvi. 391.
as a reagent, *Biot*, xxx, 409.
Polythalamian, see *Foraminiferous*.
Pöpplein, J. P., analysis of albite by, xxviii, 249.
Population and races of the earth, xxv, 137.
of the world, Dieterici's estimate of, xxvii, 381.
Porcelain, manufacturer of Chinese, xxii, 101.
Porous bodies, movements of fluids in, *Jamin*, xxix, 418.
Porter, W. D., on aurora of 1859, xxx, 361.
Porter, C. A., photometer, xxiii, 315.
Posidonia, of Pa., *Lea*, xxii, 123.
Potash detected by the blowpipe, xxix, 115.
Potato, wild in New Mexico and Texas, xxii, 284.
Pouillet's Physics, noticed, xxi, 124.
Pourtales, L. F., on the genera Orbulina and Globigerina, xxvi, 96.
Power, Mrs., aquaria used by, xxv, 97.
Pratt, N. A., sulphurets of copper of Canton, Ga., xxiii, 409.
Prazmowski, on polarization of corona during eclipse of July 18, 1860, xxx, 292.
Prescott, G. B., on aurora of 1859, xxix, 92.
Prestwich on bone cave, xxviii, 287.
human remains in drift, xxix, 269.
Pressure guage, of Davison, xxix, 203.
Privet, on coloring matter of, *J. Nicklès*, xxix, 326.
Prize questions of French Academy, xxi, 403, xxiv, 255, xxv, 433, xxviii, 119, xxix, 410, 414.
Proceedings Am. Assoc. for Advancement of Science, noticed, xxiv, 301, 302, xxvi, 150, xxviii, 158, 293, xxx, 298, 299.
Am. Philos. Soc., Philad., noticed, xxii, 304, xxx, 308.
Boston Soc. Nat. Hist., noticed, xxi, 152, xxii, 152, xxiii, 152, 304, 452, xxiv, 449, xxv, 152, xxvi, 156, xxvii, 156, 452, xxviii, 159, xxix, 454.
Philad. Acad. Nat. Sci., noticed, xxi, 152, 304, 451, xxii, 152, 455, xxiii, 152, xxiv, 450, xxv, 304, xxvi, 156, 450, xxvii, 156, 304, 452, xxviii, 159, xxix, 454, xxx, 111, 159.
Projectiles, elongated, *O. N. Rood*, xxx, 17.
causes of deviation of, *J. G. Barnard*, xxix, 190.
Propionic acid, preparation of, xxvi, 401.
Proportions in human body, xxiii, 445.
in nature, xxii, 454.
Propylene, on preparing, *Dusach*, xxi, 132.
iodated, *Berthelot* and *de Luca*, xxi, 415.
Psychology, on animal, *Weinland*, xxvii, 1.
Publication, on scientific, *E. B. Hunt*, xxvi, 25.
Pumpkin, origin of, xxiv, 441.

Q.

Quarterly Journal of Pure Mathematics, noticed, xxii, 453.
Quetelet on aurora of 1859, xxix, 392.

R.

Race, human, unity of, xxv, 329.
Races in plants, origin of, xxvii, 440.
and population of the earth, xxv, 137.
Railroad between France and England, xxv, 431.
Pacific, explorations for, xxii, 67.
Reports on, noticed, xxv, 149, 317, 450.
surveys over Rocky Mountains, Reports on, noticed, xxvi, 92.
Rain, distribution of, in the temperate zone, *Dove*, xxi, 112.
Rainbow, lunar, *J. M. Gillis*, xxx, 304.
Raindrop-marks, *J. Wyman*, xxi, 145.
Rammelsberg, analyses of ilmenite, xxviii, 136.
on titanic iron, xxvii, 127.
J. D. Dana on, xxvii, 423.
Ramsay, A. C., on Welch glaciers, xxviii, 289.
Ranunculus sceleratus, blistering by, xxvii, 120.
Ratios in nature, xxii, 454.
Ray Society, notice of, xxiv, 296.
Reclamation, by *I. I. Stevens*, xxx, 302.

Red River, Canadian expedition to, noticed, xxx, 218.
Redfield, A. M., chart of Animal Kingdom, noticed, xxv, 149.
Redfield, W. C., biographical memoir of, xxiv, 355.
cyclones of the N. Pacific, xxiv, 21.
avoidance of, xxiii, 205.
fossil fishes, relation of, to age of Newark sandstone, xxii, 357.
list of publications of, xxiv, 370.
tornadoes, spirality of motion in, xxiii, 23.
Refraction, on indices of, *Jamin*, xxv, 265.
in minerals, *Descloizeaux*, xxv, 396.
Regel, E., on parthenogenesis, xxvii, 310, 440.
Regnault, specific heat of some elements, xxii, 108.
Reichenbach, O., sun's spots, xxv, 295.
Reid, W., obituary of, xxvii, 153.
Reptiles, fossil, from Nebraska, xxii, 118.
fossil, of Pa., *Lea*, xxii, 122.
see *Zoology*.
Respiration, phenomena of, *E. Smith*, xxix, 142.
rate of, under different conditions, *Smith*, xxv, 298.
Retinal impression, on, *W. B. Rogers*, xxx, 404.
Rhees, W. J., Manual of Public Libraries, &c., notice of, xxix, 303.
Riblet, J. H., on aurora of 1859, xxx, 344.
Richard, Dr., Dict. d'Agricult., &c., xxviii, 431.
Riddell, J. L., fish-rod balance and spheroidal evaporation, xxvi, 71.
Rings of air and liquids, *W. B. Rogers*, xxvi, 246.
Ritchie, E. S., modified form of Ruhmkorff's apparatus, xxiv, 45, 143.
Ritter, C., biographical sketch of, *D. C. Gilman*, xxix, 221.
death of, xxviii, 451.
Rive, De la, Treatise on Electricity of, noticed, xxiii, 115.
River floods, France, xxii, 267.
Robey, C. H., on aurora of 1859, xxx, 346.
Robinson, E. S., on aurora of 1859, xxx, 357.
Rock, slate, of Hungary, resembling talcose slate, xxiv, 273.
Rocks, analyses of ophiolite, xxv, 217.
euphotide, xxv, 437.
igneous, nature of liquidity of, *G. P. Scrope*, xxiv, 217.
limestone, xxv, 404.
metamorphism of, xxv, 287, 435.
slate, xxv, 401.
Rocky Mountains, exploration of two new passes, by *Blakiston*, xxviii, 320.
exploration for railroad across, xxii, 67.
Reports on, noticed, xxv, 149.
geography of, xxix, 82.
Rogers, H. D., notice of his Pennsylvania Geol. Report, xxviii, 149.
Rogers, W. B., on aurora of 1859, xxix, 255.
on binocular vision, xxi, 80, 173, 439, xxx, 387.
flames, on sonorous, xxvi, 1, 240.
Rogers, W. B., on ozone, xxii, 141.
protocarbonate of iron in coal measures, xxi, 339.
on retinal impressions, xxx, 404.
rings of air and liquids, formation of, xxvi, 246.
trilobites from near Boston, xxii, 296.
Ronalds and *Richardson's* Chemical Technology, noticed, xxii, 149.
Rood, O. N., on adapting the microscope as a goniometer and for determining index of refraction, xxi, 106.
circulation in the eye, on probable means of rendering visible, xxx, 264, 385.
circular polarization by cooled glasses, xxvii, 393.
observed with the stauroscope, xxvii, 391, 394.
contraction of the muscles by vibration, xxix, 449.
elongated projectiles, xxx, 17.
light, on a new theory of, xxx, 182.
Rose, H.; on preparing aluminum from cryolite, xxi, 129, 164.
on determining strong or weak basic properties of oxyds, xxi, 130, 414.
tantalite and niobium, xxvii, 125, 126.
tantalum and its compounds, xxiii, 116.
Rosin, on distillation of, *J. Schiel*, xxx, 100.
Rotascope, *W. R. Johnson*, xxi, 146.
Royce, F. W., on aurora of Aug., 1859, xxix, 97.
Rucker, B. F., on aurora of 1859, xxx, 359.
Ruhmkorff's apparatus, effects with, xxii, 268.
modified by *Ritchie*, xxiii, 451, xxiv, 45, 143.
Rümker, G., discovers second comet of 1860, xxx, 141.
Runkle's Mathematical Monthly, noticed, xxvi, 153, 447.
Ruthenium, experiments of *Claus* upon, xxix, 52.
experiment upon, by *Frémy*, xxix, 53.

S.

Sabine, Gen. E., on Capt. Blakiston's Report, xxviii, 320.
aurora at Pt. Barrow, xxv, 105.
Saccharine substances, combinations of, xxi, 119.
Safford, J. M., on Calceola in Tenn., xxix, 248.
Geology of Tennessee, xxii, 129.
on Tennessee Silurian history, xxvi, 128.
on the genus Tetradium, xxii, 236.
Sahara artesian wells, xxv, 140.
desert of, xxvi, 374.
St. John, electrical phenomena in houses, xxvi, 62.
Salicyl, new derivatives of, xxiv, 425.
Saline solution, on supersaturated, *H. Loewel*, xxx, 411.
Salines and salt of France, *Hunt*, xxv, 361.
Salmon breeding, xxi, 292.
Sandoz, E., new map of the Alleghanies, noticed, xxx, 392.

Sandstone of Connecticut, etc., relation of fossil fishes of, *W. C. Redfield*, xxii, 357.
called *Newark* sandstones, by W. C. Redfield, xxii, 357.
Dana, xxii, 321.
of Pa., fossils of, *Lea*, xxii, 122.
see *Geology*.
Sandy Hook, increase of, *A. D. Bache*, xxiii, 16.
Saturn, on telescopic appearances of, *W. R. Dawes*, xxi, 158.
Saulnier, P., notice of, *Durand*, xxiv, 169.
Scacchi, Vesuvian minerals, xxii, 247.
Scales of the striped bass, analysis of, *J. Green*, xxvi, 447.
Schaffner, *T. P.*, Telegraphic Manual, notice of, xxix, 150.
Schiel, *J.*, on distillation of rosin, xxx, 100.
Anleitung zur Organischen and Gas-analyse, noticed, xxx, 155.
Schlagintweit, Adolph, death of, in Turkistan, xxvi, 378, xxix, 236.
Schlagintweit, brothers, on India, xxv, 310.
ethnographical collections, xxix, 235.
mission to Asia, noticed, xxx, 217.
salt lakes of the Himalayas, xxix, 245.
Schlossberger, on dissolving cellulose, xxvii, 118.
test for silk and cotton, xxvii, 420.
Schmarda, *L. K.*, Neue Wirbellose Thiere, &c., xxix, 293.
Schmitt, *A.*, on magnesium as a source of light, xxx, 270.
Schmidt, *H. B.*, anatomical models of, xxiii, 147.
Schönbein, on oxygen, xxvii, 19.
on ozone and ozonic actions, xxi, 418.
Schott, *A.*, on the Isthmus of Choco, New Granada, xxvii, 368.
Schott, *C. A.*, magnetic declination, xxix, 335.
Schroeder, relation between fermentation and crystallization, xxvii, 122.
Schweizer, solution of cellulose, &c., xxix, 429.
Scientific Association at Carlsruhe, xxvii, 117.
versus practical instruction, xxviii, 298.
Scoresby, W., obituary of, xxvi, 300.
Scott, *A.*, notes on the Bermudas, xxiv, 274.
Scott, *J. J.*, on aurora of 1859, xxx, 357.
Screw in navigation, first introduction of, xxvi, 393.
propellers, *W. Hopkins*, xxiii, 60.
Scrope, *G. P.*, on craters, xxiii, 346.
on the formation of craters, and the liquidity of lavas, xxiv, 217.
Sea of Kamtschatka, soundings in, *Bailey*, xxii, 1.
Searl, *George*, takes a prize for planet Nemausa, xxviii, 119.
Seawater, extraction of salts from, xxv, 361.
Seaweeds, *Harvey* on American, noticed, xxvii, 142.
on Blodgettia, *Harvey*, xxvii, 144.
Secchi, *A.*, on aurora of 1859, xxix, 397.
on eclipse of July 18, 1860, xxx, 288.
view of part of moon, xxii, 265.
Sedgwick on British Palæozoic Rocks, noticed, xxi, 302.
subdivisions of the Palæozoic strata of Britain, xxi, 343.
Seemann's Botany of the Herald, noticed, xxiii, 127.
Selden, *J. E.*, on aurora of Aug. 1859, xxix, 95.
Selenium, crystalline form, &c., of, xxi, 411.
isomeric modifications of, *Regnault*, xxii, 108.
Selenmethyl, *Wöhler* and *Dean*, xxi, 245.
Sella, *Q.*, crystals of boron, xxvi, 110.
Serapis, changes in, *Lyell*, xxii, 126.
Serpentine marbles, analyzed by *C. T. Jackson*, xxiii, 123.
rock, *A. A. Hayes*, xxi, 382.
Sesquisalts, on soluble basic, *Ordway*, xxvi, 197.
Sheffield, *J. E.*, liberality of, towards the Yale Scientific School, xxx, 308.
Shepard, *C. U.*, in Europe, xxx, 308.
on lazulite and tetradymite in Georgia, xxvii, 36.
new meteoric iron of S. Africa, and a supposed new of Mexico, xxi, 213.
on supposed meteoric iron from N. C., xxviii, 259.
Petersburg meteorite, xxiv, 134.
on meteorites, xxx, 204.
new minerals, xxii, 96.
proposed, xxviii, 129.
reply to Dr. Genth, xxiv, 38.
Mineralogy, noticed, xxiii, 148, xxiv, 109.
shooting meteor, xxviii, 270.
Shooting stars of August, 1856, xxii, 290.
of August, 1858, xxvi, 435.
C. Gravier, xxvi, 435.
of August, 1859, *E. C. Herrick*, xxviii, 446.
of Aug., 9th and 10th, 1860, *E. C. Herrick*, xxx, 296.
Shumard, *B. F.*, notices of Permian fossils of Texas and New Mexico, &c., xxix, 125.
observations on geology of Ste. Geneviéve, Mo., xxix, 126.
Permian in the Guadalupe Mountains, Rocky chain, xxv, 442.
report of Geol. and Agr. survey of Texas, noticed, xxix, 287.
Shumard, *G. G.*, on geology of Jornada del Muerto, New Mexico, xxix, 124.
Eleutherocrinus, xxii, 121.
Siebold, on parthenogenesis, xxiv, 400.
Silica, non-existence of polarizing, in the organic kingdoms, *Bailey*, xxi, 357.
solubility of, in water, xxi, 194.
soluble, *Fuchs*, xxiii, 100.
Silicates, mineral hydrous, classification of, xxvi, 361.
Silicium, xxi, 258, 404, 418.
and metallic siliciurets, xxiv, 423.
a new oxyd of, *Wöhler*, xxiv, 140.
Siliciuret of hydrogen, xxiv, 413.
Wöhler, xxvii, 123.

Silicon, new compounds, *Buff*, xxv, 270.
Silk and cotton distinguished by means of protoxyd of nickel, xxvii, 420.
worm, the true Bombyx Cynthia, xxvi, 398.
Sillacius, N., reprint of a tract by, noticed, xxix, 400.
Silliman, *B.*, obituary of Robert Hare, xxvi, 100.
Parker Cleveland, xxvi, 448.
J. Griscom, xxix, 151.
notice of Daubeny's Roman husbandry, xxv, 302.
notice of New Am. Cyc., xxix, 303.
Silliman, *B., Jr.*, Atlantic telegraph cable, xxvi, 285.
on combustion of wet fuel, xxx, 243.
note on loss of light by glass shades, xxx, 423.
notice of Dawson's Archaia, xxix, 146.
Cooke's Elements of Chemistry and Physics, xxix, 450.
meteor of Aug. 11, 1859, xxviii, 300.
Museum of Comparative Zoology at Cambridge, xxvii, 450.
obituary of W. W. Mather, xxvii, 452.
on a photometer, xxiii, 315.
thirteenth meeting of the Am. Assoc. at Springfield, xxviii, 293.
fourteenth, at Newport, xxx, 298.
solar eclipse of July 18, 1860, xxx, 281, 292, 309.
Silliman's First Principles of Natural Philosophy, noticed, xxvi, 447.
Silurian basin of Hudson's Bay, etc., xxi, 318.
Silver, action of light on chlorid, xxiv, 263.
Silvering glass, *Petitjean's* process for, xxiv, 268.
Simple bodies, discussion on, xxviii, 121.
on existence of new, *Bunsen* and *Kirchhoff*, xxx, 410.
Simpson, *J. H.*, on aurora of 1859, xxx, 352.
Sismonda, on fold in strata of Petit Cœur, xxix, 121.
Smallwood, *C.*, on aurora of 1859, xxix, 250, 251.
contributions to meteorology, xxi, 286.
Smith, *E.*, on respiration, xxix, 142.
Smith, *J.*, on cause of color and theory of light, xxix, 276.
Smith, *J. L.*, artesian well at Louisville, xxvii, 174.
description of three new meteoric irons, xxx, 240.
meteoric stones, in Indiana, March 28th, 1859, xxviii, 409.
in Ohio, May 1, 1860, xxx, 111.
Smith, *S.*, depth of mollusks off Long Island, xxvii, 281.
Smithsonian Contributions to Knowledge, vol. viii, noticed, xxiii, 150.
vol. ix, noticed, xxiv, 445.
Institution, list of works published by, xxiii, 300.
miscellaneous collections, xxix, 451.
Smithsonian Institution, Report for 1856, noticed, xxiv, 301.
for 1857, xxvii, 302.
Smyth, astronomical expedition of, to Teneriffe, xxiv, 417.
Snell, *E. S.*, vibrations in Holyoke fall, xxviii, 228.
Society for the Aid of the Friends of Science, xxvi, 266.
Soda, detection of, by the blowpipe, xxix, 115.
manufacture of, new mode, xxi, 120, xxiii, 443.
Ordway, xxvi, 364.
Leblanc's process, xxii, 99.
Soils, absorptive properties of, xxviii, 71.
economy of ammonia in, xxviii, 76.
the function of, xxviii, 84.
Solar eclipse, see *Eclipse*.
parallax, *Gould* and *Gilliss*, xxvi, 146.
Solubility of sulphate of baryta, xxvii, 120.
of silica and calcite in water, xxi, 194.
Solution, on supersaturated saline, *H. Loewel*, xxx, 411.
Sorghum, xxvi, 262.
Sound from flames, *W. B. Rogers*, xxvi, 1, 240.
Sounding apparatus, *E. B. Hunt*, xxvi, 242.
new, *Trowbridge's*, xxviii, 1.
Soundings along the telegraph plateau, xxvi, 219.
deep sea, *W. P. Trowbridge*, xxvi, 159, 386.
infusoria in oceanic, xxvi, 387.
see *Depth*.
South Carolina, changes in coast of, xxviii, 354.
Species, errata to article on, by *J. D. Dana*, xxvi, 146.
origin of, *T. Parsons*, xxx, 1.
origination and distribution of, *J. D. Hooker*, xxix, 1, 305.
thoughts on, *J. D. Dana*, xxiv, 305, see *Darwin*.
Specific gravity apparatus, *Eckfeldt* and *Dubois*, xxii, 294.
Spectra, on chemical analysis, by means of, xxx, 415.
Specula, polishing, *R. Greene*, xxiii, 145.
Speculum for telescopes, new, xxiv, 259.
Speke, explorations in eastern Africa, xxix, 242.
Spencer, C. A., his improved microscopes, xxviii, 39.
Spheroidal evaporation, *Riddell*, xxvi, 71.
Spillman, *W.*, meteor of July 8th, xxii, 448.
Sponge, a boring, *J. Leidy*, xxiii, 281.
Bowerbank, xxii, 439.
Spongeous origin of siliceous bodies of chalk, xxii, 415.
Spontaneous generation, *Pouchet*, xxvii, 253.
Claude Bernard, xxvii, 406.
J. D. Dana, xxvii, 408.
Dumas, xxvii, 407.
Milne Edwards, xxvii, 401.
Payen, xxvii, 405.
Quatrefages, xxvii, 406.

Squier, E. G., prize to, xxii, 148.
Star charts, notice of, xxiv, 415.
variable, in Pisces, xxi, 438.
fishes, Palæozoic, *Salter*, xxii, 415.
Stars, new double, *A. Clark*, xxv, 129.
sudden appearance of, note on, xxiv, 415.
Stauroscopic observations of F. von Kobell, noticed, xxvii, 388.
on cooled glasses, *O. N. Rood*, xxvii, 391.
Steam boilers, feeding of, with a continued supply of pure water, *A. Sauvage*, xxvi, 395.
engine, *R. Clausius* on, xxii, 180, 364.
mechanical theory of heat in, *R. Clausius*, xxiii, 25.
Steel, containing tungsten, xxviii, 277.
Steele, A., on aurora of 1859, xxx, 348.
Stein, on coal of Saxony, xxv, 283.
Stereochromy, xxiii, 101.
Stereoscope, telescopic, *Helmholtz*, xxv, 297.
Stereoscopic advertisements, *E. W. Blake*, xxx, 304.
experiment, *Lugeol*, xxii, 104.
vision, *W. B. Rogers*, xxi, 80, 173, 439.
Stevens, R. P., coal measures of Ohio and Illinois, xxvi, 72.
new carbonif. fossils, xxv, 258.
Stimpson, W., botanical and zoological nomenclature, xxix, 289.
collections by, in North Pacific Expedition, xxiii, 136.
Crustacea and Echinodermata of the Pacific shores of N. America, xxiv, 288.
of N. Am., xxviii, 159.
fossils at Gay Head, Mass., xxix, 145.
geological notices, xxix, 288.
on Leptosiagon, xxv, 295.
on Mithracidæ, xxix, 132.
obituary of W. W. Turner, xxix, 152.
Prodromus evertebratorum, &c., noticed, xxiii, 451, xxvi, 141, 446, xxvii, 444.
trip to Beaufort, S. C., xxix, 442.
zoological bibliography, xxviii, 445, xxix, 133, 293.
notices, xxviii, 444, xxix, 129, 442, xxx, 140.
zoology of Greenland, xxv, 124.
Stoddard, O. N., diluvial striæ, xxviii, 227.
Storer, F. H., behavior of $\dot{C}a\ddot{C}$ and $\dot{B}a\ddot{C}$ with various saline solutions; on the determination of carbonic acid in mineral waters, xxv, 41.
chemical notices, xxix, 278, 429, xxx, 125, 265.
on larves of flies resisting arsenic, xxviii, 166.
on loss of light by glass shades, xxx, 420.
review of Antisell on photogenic oils, xxx, 112, 254.
Storm, barometric action during, *J. Chappellsmith*, xxiii, 18.
the Schuyler, xxiv, 290.
Storms, on avoiding, *J. Rodgers* and *A. Schönborn*, xxiii, 205.
cyclonic of the N. Pacific, *W. C. Redfield*, xxiv, 21.
Storms, spirality of whirlwind, *W. C. Redfield*, xxiii, 23.
Straw lightning rods, xxvii, 303.
Strawbridge, H. H., on aurora of 1859, xxx, 356.
Strong's Elem. and Higher Algebra, noticed, xxx, 306.
Strontia sulphate, solubility in acids, xxvii, 419.
Strychnia, chemical reactions of, xxviii, 216.
methods of detecting, xxii, 413.
Students visiting Europe, information to, xxii, 146.
Sturm, Cours d'Analyse, noticed, xxviii, 432.
obituary of, xxi, 254.
Submarine telegraph, importance of soundings for, xxviii, 51.
tunnel, motor for, xxvi, 98.
Subsidence of N. Jersey coast, *G. H. Cook*, xxiv, 341.
Suckley and Cooper, reports on Nat. Hist., &c., of Minnesota, Nebraska, &c., notice of, *A. Gray*, xxx, 138.
Suckley, G., disclaimer, xxx, 304.
Suez, level and character of isthmus, xxii, 273.
Sugar, brown, chemical examination of, *Alexander* and *Morfit*, xxv, 393.
cane, from glycerine, etc., xxiv, 413.
method of refining, *Daubeny*, xxv, 144.
in urine, on determining, xxi, 132.
Sugars, two, from California, xxii, 6.
Sullivant and *Wormley*, measurement of striæ of Diatoms, xxvii, 249.
Sullivant's Musci and Hepaticæ of the U. States, noticed, xxiii, 129.
Sulphates, preparation of pure, *H. Wurtz*, xxvi, 367.
Sulphur, different states of, xxiv, 260.
Sulphuric acid, action of, on nitriles and amids, xxiii, 269.
new mode of manufacturing, xxi, 120.
Sun, influence of light of, on combustion, *Le Conte*, xxiv, 317.
influences of, on the earth, *Helmholtz*, xxiv, 207.
note on constitution of, xxiv, 416.
parallax of, new determination of, *Gilliss* and *Gould*, xxv, 305*.
rays of, heat in, xxii, 377, 382.
spots of, periodicity in, *Reichenbach*, xxv, 295.
Sunken vessels, on raising, xxvi, 264.
Surveying, problem in, *W. M. Gillespie*, xxiii, 224.
Sutton, G., on aurora of 1859, xxx, 354.
Swallow, G. C., on carboniferous fossils, noticed, xxv, 447.
on Permian, xxvi, 115, 182.
in Kansas, xxv, 305*, 442.
Report by, on Geol. Survey of Missouri, noticed, xxi, 151, 427.
Sylvester's Quarterly Journal of pure and applied Mathematics, xxiii, 149.

T.

Tamisier, experiments on rifled cannon, xxix, 270.

Tantalum and its compounds, *Rose*, xxiii, 116.
Tape worm, metamorphosis of, xxvii, 278.
Tasmania, introductory essay to flora of, *J. D. Hooker*, xxix, 1, 305.
Taurine, xxii, 13.
Taylor, *W. J.*, on aragonite near the Arkansas, xxiv, 275.
on lecontite, xxvi, 273.
meteoric iron of Xiquipilco, xxii, 374.
on a nickel meteorite, xxiv, 293.
mineralogical notes, xxvi, 134.
on rock guano, xxiv, 177.
oysters, on green-gilled, xxv, 294.
translation by, of Janoyer, on the influence of sulphur on iron, xxiv, 330.
Telegraph, Atlantic cable, xxvi, 285, 440.
across the Mediterranean, xxi, 257, xxiii, 107.
nautical, xxiii, 442.
plateau soundings, xxvi, 219.
Telegraphic wire, dangers from, xxvi, 396.
Telescope, equatorial, *Porro*, xxii, 103.
of silvered glass and mirrors of different surfaces, xxvi, 399.
Telescopes of *A. Clark*, xxi, 158.
polishing specula for, *R. Greene*, xxiii, 145.
Telestereoscope, *Helmholtz*, xxv, 297.
Telluramyl and selenmethyl, xxi, 245.
Temperature of air and sea, *Dove*, xxvi, 91.
of earth at depths, xxv, 443.
variations in, dependent on astronomical causes, *Meech*, xxiv, 446.
isothermal, *Hennessy*, xxiii, 144.
Tennessee, Geology of, by *R. O. Currey*, noticed, xxiv, 280.
Tenney, S., Geology for Teachers, &c., notice of, xxix, 288.
Terraces or beaches on Western Islands, xxiii, 299.
Tertiary shells, etc., of California, *Blake*, xxi, 268.
see *Geology*.
Tetradium, *J. M. Safford* on, xxii, 236.
Thayer, *H. E.*, on aurora of Aug. 1859, xxix, 96.
Thenard, death of, xxiv, 299.
obituary notice of, xxv, 430.
Thermometer, Saxton's self-registering, described, xxx, 315.
effect of pressure on, xxix, 203.
Thermometers, in Kane's Arctic Expedition, discrepancies among, xxiv. 249.
Thickstun, *T. F.*, on aurora of 1859, xxx, 340.
Thompson, Z., obituary of, xxi, 301, xxii. 44.
Thought, rapidity of, *Ule*, xxiv, 445.
Thunder-storms, on geographical distribution of, *E. Loomis*, xxx, 94.
Tidal wave in Hudson river, *A. D. Bache*, xxiii, 17.
observations, Coast Survey, xxv, 81.
Tides, *Barnard* on, xxvii, 349.
of the Atlantic coast of U. States, *A. D. Bache*, xxi, 14. xxv, 47.
of the Gulf of Mexico, xxi, 28, xxiii, 1.
Tides, notes on, *Lloyd*, xxiv, 417.
of Nova Scotia, *Chevallier*, xxiii, 289.
at Ponape, Carolines, xxii, 142.
of the U. S. Coast, prediction tables for, *A. D. Bache*, xxiii, 12.
of west coast of U. S., *A. D. Bache*, xxi, 1; 10, 22.
Time, automatic comparison of, between distant stations, *J. H. Lane*, xxix, 43.
Tin, on some soluble salts of, *J. M. Ordway*, xxiii, 220.
Titanic iron, xxvii, 127, 423.
Tobacco manufacture in Paris, xxv, 434.
Tolles' microscope objectives, noticed, *M. C. White*, xxx, 156.
Toluol, on transformation into benzoic alcohol and toluic acid, xxi, 132.
Top, on the motion of, *J. G. Barnard*, xxv, 74.
Tornado, the Schuyler, xxiv, 290.
see *Storm*.
Torrey, *J.*, Botany of Mexican Boundary, xxviii, 291.
discovery of pectine in the analysis of tuckahoe, xxvii, 439.
Torsion and magnetism, relations of, xxviii, 432.
Totten, *J. G.*, sudden disappearance of ice on lakes, xxviii, 359.
Townsend, David, obituary of, xxvii, 443.
Trans. Am. Philos. Soc., Philad.. vol. xi, new series, Pt. III, 1860, noticed, xxx, 308.
Transit instrument, on use of, in determining latitude, *C. S. Lyman*, xxx, 52.
Trask, *J. B.*, aurora of Aug. 1859, xxviii, 406.
earthquakes in California, xxii, 110, xxiii, 341, xxv, 146, xxvi, 396, xxviii, 447.
Triassic, see *Geology*.
Trilobites from Potsdam sandstone, described, *Bradley* and *Billings*, xxx, 241, 337.
from near Boston, *W. B. Rogers*, xxii, 296.
Trionyx, from Nebraska, xxii, 120.
Triphenylamin, xxiii, 268.
Troodon, fossil reptile, *Leidy*, xxii, 119.
Troost and *Deville* on densities of vapors, xxviii, 435.
Trowbridge, *W. P.*, deep sea soundings, xxvi, 157.
deep sea explorations, xxvi, 386.
new sounding apparatus for, xxviii, 1.
in reference to an Atlantic telegraph, xxviii, 51.
Troy, *M.*, on aurora of 1859, xxx, 348, 357.
Trübner's Guide to Am. Lit., notice of, *D. C. Gilman*, xxix, 302.
Tschudi, return from Peru, xxvii, 303.
Tuckahoe, analysis of, xxvii, 439.
Tuckermann, *E.*, enumeration of North American lichens, xxv, 422, xxviii, 200.
Lichenes, noticed, xxvi, 412.
Tungsten, researches on, *Riche*, xxi, 416.
Tuomey and Holmes, on the fossils of S. Carolina, noticed, xxiv, 159, 447, xxv, 146.

Turkey, new, of Mexico, xxii, 139.
Turtle, embryology of, *Agassiz*, xxv, 342.
Tuttle, C. W., discovery of a comet, xxx, 292.
obtains the comet prize, xxviii, 120.
Twining, A. C., aurora of 1859, xxviii, 394.
on occultations by the moon and planets, and experiments on light and magnitude, in relation to vision, xxvi, 15.
shooting stars of August, 1859, xxviii, 446.
Tyndall, disposition of force in paramagnetic and diamagnetic bodies, xxiv, 264.
Typhoons of the N. Pacific, *W. C. Redfield*, xxiv, 21.
Tyssowski, J., translation of Rose on aluminum, xxi, 164.

U.

Underwood, D., on aurora of 1859, xxx, 340.
Unio, on a new, *T. A. Conrad*, xxi, 172.
United States, statistics of Flora of N., *A. Gray*, xxii, 204.
Unity of the human race, xxv, 328.
Universal Exposition, Paris, xxi, 256, 261.
Urals, notes on, xxv, 314.
Uranium, on metallic, *Péligot*, xxi, 418.
Urea from albuminoid substances, xxvi, 97.
formation of by oxydation of albuminous matters, xxiii, 268.
origin of, in animal economy, xxiii, 112.
Urine, on determining sugar of, xxi, 312.

V.

Valeral compounds with acids, xxviii, 145.
Valparaiso, longitude of, xxvi, 378.
Vapors, densities of certain, xxv, 268.
at high temperatures, xxviii, 435.
Varieties, origin of, in plants, xxvii, 440.
Vegetable individual, in its relation to species, *A. Braun*, xxi, 58.
Venezuela, expedition in, xxvi, 94.
Verdeil, on preservation of flesh, xxx, 269.
Verver, on loss of light by glass shades, xxx, 420.
Vibrations in Holyoke waterfall, *Snell*, xxviii, 228.
Victor, N. de St., photo-chem. researches, xxix, 271.
Vienna geological transactions, xxii, 453.
scientific publications, xxi, 303, xxv, 287.
Vilmorin on alizarin, xxviii, 277.
sur l'Amelioration des Plantes, etc., noticed, xxvii, 440.
Vision, binocular, law of, *Dingle*, xxvii, 262.
facts in, *Stevelly*, xxvii, 263.
W. B. Rogers, xxi, 80, 173, 439, xxx, 387.
Volcanic action on Hawaii, xxiii, 435.
ashes, shower of, about Quito, *G. Jones*, xxiii, 276.
cones, formation of, *Lyell*, xxvi, 214.
craters of Java, vegetation around, xxvi, 416.
craters and lavas, *G. P. Scrope*, xxiv, 217.
Volcano of Antuco, Chili, noticed, xxi, 148.
Volcano of Kilauea, condition of, *T. Coan*, xxi, 100, xxv, 136.
of M. Loa, eruption of, *T. Coan*, xxi, 139, 237, xxii, 240, xxvii, 410.
J. D. Dana, xxi, 241.
R. C. Haskell, xxviii, 66, 284, xxix, 301.
of Pichincha, *G. G. Moreno*, xxvi, 408.
Volcanoes of California and Oregon, xxvi, 124, 126.
conical form of, *Lyell*, xxviii, 221.
eruption of Mount Hood, xxviii, 448.
extinct, of Australia, xxv, 289.
mud of California, *J. A. Veatch*, xxvi, 288.
Scrope on, xxiii, 346.
of Southern Italy, *Deville*, xxii, 272.
Voltaic, see *Galvanic*.
Voyage of discovery, Austrian, xxiv, 260.

W.

Wagner's visit to the Cordilleras, xxviii, 93.
Wallich, G. C., origin of flint in chalk, xxix, 447.
Warner, J., Organic Morphology, noticed, xxiv, 443.
see *Errata*, vol. xxiv.
Warrington, on effect of excess of heat on the aquarium, xxi, 437.
Warren, G. K., explorations in the Dacota country, xxiv, 300.
map, Pacific R. R. Reports, xxvii, 380.
memoir to accompany a map of the W. Territory of U. S., xxviii, 418.
Report of Explorations in Nebraska and Dakota, xxvii, 378.
Warren, J. C., obituary of, xxii, 151.
Water, discovery of composition of, xxvii, 421.
filtration of, through sand, *Witt*, xxiv, 157.
heat, developed in, by agitation, xxv, 145.
as the medium by which the ingredients of a soil enter plants, xxviii, 79.
Waters of the Caspian, density of, xxii, 301.
of the Dead Sea, analysis of, xxii, 301.
in the Desert of Sahara, xxii, 301.
of Delaware river, analysis of, *H. Wurtz*, xxii, 124, 301.
of Lake Ooroomiah, *Witt*, xxii, 276.
specific gravity, etc., of several salt, xxii, 277.
Waterfall of Holyoke, vibrations, *Snell*, xxviii, 228.
Wattles, L. C., on aurora of 1859, xxx, 355.
Waves of Japan earthquake felt on the west coast of U. S., *A. D. Bache*, xxi, 37.
Wax tree from China, in France, xxiii, 107.
Weddell, Chloris Andina, noticed, xxii, 437.
on the Urticaceæ, noticed, xxv, 109.
Weighing of moist precipitates, *F. F. Mayer*, xxix, 280.
of small portions of matter, *A. McMayer*, xxv, 39.
Weinland, D. F., animal psychology, xxvii, 1.

Weinland, D. F., on zoology of Hayti, xxvi, 210.
on the tape-worm, xxvii, 279.
Weinland, H. F., New Zool. Jour., xxix, 295.
Wells, D. A., on meteor of Aug. 11, 1859, xxviii, 300.
Year Book of Agriculture, xxi, 151.
Wenham, H. F., on the aperture of object glasses, xxi, 103.
remark on paper by, *J. W. Bailey*, xxi, 105.
West, C. E., earthquakes in New York, xxvi, 177.
Westbrook, C., on aurora of 1859, xxx, 354.
Western Academy of Nat. Sci., xxii, 150.
Wetherill, C. M., artesian well of Lafayette, Ind., xxvii, 241.
Wharton and Stillé, on Medical Jurisprudence, noticed, xxi, 150.
Wheatley collections, sold to Union College, xxv, 446.
Whelpley, H. J., on aurora of 1859, xxx, 342.
Whirlwind, see *Storm*.
White, B., on aurora of 1859, xxx, 343.
White, M. C., application of polarized light to the microscope, xxvi, 391.
notice of Tolle's microscope objectives, xxx, 156.
Whitney, J. D., appointed State Geologist of Cal., xxx, 157, sailed, 424.
Geology of Iowa by, noticed, xxvii, 103.
on the Huronian and Laurentian system of rocks, xxiii, 305.
iron ore of Azoic system, xxii, 38.
new mineral localities, xxviii, 8.
on pectolite, xxix, 205.
Whittlesey, C., fluctuations of water level of Green Bay, xxvii, 305, 447.
on the dissolution of field ice, xxix, 111.
Wilkes's Theory of the Winds, noticed, xxi, 301.
Williams, M. G., on aurora of 1859, xxx, 344, 353.
Wilson, C. W., on aurora of 1859, xxx, 353.
Wilson, J. H., on aurora of 1859, xxx, 346.
Wohler, on a new oxyd of silicon, xxiv, 140.
siliciuret of hydrogen, xxvii, 123.
and *Dean*, properties of telluramyl and selenmethyl, xxi, 245.
Wolff, supposed ancient observations of intra-mercurial planet, xxix, 417.
Wolfram steel, xxviii, 277.
Wollaston medal, xxv, 290.
Insecta Maderensia, noticed, xxii, 286.
Wood, B., on a new fusible metal, xxx, 271.
Woodbridge, W. E., pressure of fired gunpowder, xxii, 153.
Woodbury, D. P., on aurora of 1859, xxx, 360.
on the Stability of Arches, noticed, xxvii, 156.
Woody fibre, action of metallic salts, xxvii, 120.
transformed to sugar, xxviii, 126.
Work, in machines, *Helmholtz*, xxiv, 191.
Wormley, T. G., chemical reactions of strychnia, xxviii, 216.
Wurdemann, G., death of, xxix, 304.
Wurtz, A., alcohols, on new series of, xxix, 427.
bases, on new oxygen xxix, 426.
on ether and its homologues, xxii, 107.
ethylene, on oxyd of, xxviii, 144.
glycerine, on the production of, xxiv, 140.
Dutch liquid, xxiv, 424.
oxalic acid, formula of, xxiv, 425.
Wurtz, H., blowpipe, on modes of increasing the heat of, xxvii, 179.
bullet from a man's lung, xxvi, 192.
on cobalt and nickel, xxvii, 24.
contributions to analyt. chem., xxv, 371.
glycerine, uses of, xxvi, 195.
indigo test, xxvi, 49.
nitric acid, action of on the metallic chlorids, xxvi, 81, 188.
sulphates, preparation of pure, especially sulphate of copper, xxvi, 367.
on water of Delaware, xxii, 124.
Wylie, T. A., on Elephas primogenius in White River, xxviii, 283.
Wyman, J., carboniferous batrachian remains, xxv, 158.
fossil footprints in Pennsylvania, xxi, 444.
rain-drop marks, xxi, 145.
unusual modes of gestation, xxvii, 5.
Wyrick, D., on aurora of 1859, xxx, 354.

Y.

Yandell, Eleutherocrinus, xxii, 120.

Z.

Zeising, A., work by, on ratios in nature, noticed, xxii, 454.
Zeuglodon, new specimen of, xxi, 146.
Zirconium, nitride of, *J. W. Mallet*, xxviii, 346.
Zodiacal light, *F. A. P. Barnard*, xxi, 217, 399.
G. Jones, xxiii, 150, xxiv, 374.
note on *G. Jones*'s observations, xxiv, 289.
Zoological aquarium, by *T. R. Jones*, noticed, xxvi, 436.
bibliography, xxix, 293, see *Notices*.
classification, Agassiz on, reviewed, *J. D. Dana*, xxv, 321.
collections of North Pacific Expedition, *Stimpson*, xxiii, 136, 451.
literature, Catalogue of, *J. V. Carus*, xxix, 129.
Journal, new, *H. F. Weinland*, xxix, 295.
museum at Cambridge, xxvii, 295, 450, xxix, 145.
notices, xxi, 282, 428, xxii, 134, 284, 429, xxiii, 126, 278, xxiv, 151, 281, xxv, 109, 290, xxvi, 135, 279, 412, xxvii, 142, 277, 437, xxviii, 439, xxix, 129, 289, 442, xxx, 137, 275.
Society for Acclimation, xxi, 407.
Zoology—
Agassiz's contributions to U. S. Nat. Hist., noticed, xxv, 126, 202, 321.

Zoology—
Alabama, letters on Nat. Hist. of, *P. H. Gosse*, xxix, 132.
Amphipoda Skandinaviens, xxviii, 445.
Baird's Pacific Railroad Report on, noticed, xxvi, 142.
Binney's Terres. Air-breathing Mollusks, &c., Supplement to, noticed, xxix, 294.
Bronn's Klassen und Ordnungen des Thier-Reichs, &c., xxix, 130.
Bruzelius, R., on Amphipoda, xxviii, 445.
Carus's Icones Zootomicæ, noticed, xxvi, 141.
Coleoptera, *Melsheimer's* Catalogue of N. Am., noticed, xxvii, 447.
Crustacea, classification of, *J. D. Dana*, xxv, 335.
of Mexico, &c., by de Saussure, noticed, xxvii, 445.
of N. Am., *W. Stimpson*, xxviii, 159.
of N. Pacific, *W. Stimpson* on, noticed, xxvi, 141, 446, xxvii, 444.
Dicotyles, fossil, *J. Leidy*, xxiii, 450.
Dinornis, on a new, xxii, 138.
Diptera, Osten-Sacken's Catalogue of N. Am., noticed, xxvii, 445.
fishes of China, xxiv, 446.
of fresh water of Trinidad, *Gills'* Synopsis of, noticed, xxviii, 159.
gar-pikes, young of, *L. Agassiz*, xxii, 440, xxiii, 284.
generation, on equivocal, *Clark* and *Lütken*, xxviii, 154.
genus and species in, value of, *Wollaston*, xxii, 287.
gestation in some fishes and reptiles, *Wyman*, xxvii, 5.
Gillis's Expedition to Chili, noticed, xxi, 147.
graptolites, zoological affinities of, *McCrady*, xxix, 131.
of Greenland, *Stimpson*, xxv, 124.
Kongelige Danske Videnskabernes Selskabs Skrifter, 5te Raekke 4de Binds, 1856–57, noticed, xxix, 295.
Hydroidea of Charleston Harbor, xxix, 131.
insects, perforation of lead by, xxv, 432.
in Jour. of Acad. Nat. Sci., Philad., vol. iv, part iii, xxx, 160.
Leptosiagon of Trask, *Stimpson*, xxv, 295.
Lereboullet's, noticed, xxvi, 267.
Liljeborg's Les Genres Loriope et Peltogaster, noticed, xxix, 293.
Lingula pyramidata, xxix, 444.
note on, *J. McCrady*, xxx, 157.
Zoology—
Mammals, classification of, *Owen*, xxv, 7, 177.
of North America, xxvi, 143.
Mem. de l'Acad. de Dijon, Sec. Ser., Tom., vii, noticed, xxx, 308.
millepores, animals of, *Agassiz*, xxvi, 140.
Mithracidæ, revision of genera of, *W. Stimpson*, xxix, 132.
mollusks of coast of Cal., *P. Carpenter*, xxii, 438.
depth of, about Long Id., *S. Smith*, xxvii, 281.
of North America, *Baird*, xxviii, 158.
Oceana nutricula, &c., xxix, 130.
Ophiurans, a tribe of star-fishes, xxviii, 55.
Ophiurans, *Clark* and *Lütken* on, xxviii, 55.
growth of, xxviii, 59.
of Oregon and California, *Newberry*, xxviii, 152.
papers on, by *J. Leidy*, xxii, 119, xxiii, 450.
in Proc. Acad. Nat. Sci., Philad., xxviii, 159, xxix, 135, 295, 454, xxx, 160.
Acad. St. Louis, xxx, 308.
Brit. Assoc. for Advanc. of Sci., xxix, 295.
Elliot Soc. Nat. Hist., Charleston, S. C., xxix, 134.
Soc. Nat. Hist., Boston, xxviii, 159, xxix, 134, 454, xxx, 160.
Soc. Nat. Hist., Copenhagen, xxviii, 445.
Zool. Soc. of London, 1858, xxix, 135.
reptiles of some W. India islands, list of, xxiii, 282.
ruminants, aboriginal, of Britain, xxiii, 132.
Schmarda's Neue Wirbellose Thiere, noticed, xxix, 293.
shells of N. and S. Carolina, Cat. of *J. D. Kurtz*, xxix, 294.
sponge, on a boring, *J. Leidy*, xxiii, 281.
Torrell's Spitzbergens molluskfauna, noticed, xxviii, 444.
in Trans. Am. Philos. Soc., Philad., vol. xii, part ii, xxix, 295.
trip to Beaufort, *W. Stimpson*, xxix, 442.
turkey of Mexico, on a new, xxii, 139.
Unio, on a new, *Conrad*, xxi, 172.
Vibrio, origin of, *H. J. Clark*, xxviii, 107.
See also *Crustacea*, *Fossils*, *Insects*.

ADDENDA.

Bouguer, Traité d'Optique, quoted, xxx, 423.
Floral calendar, for Lauerdale Co., Ala., *T. P. Hatch*, xxi, 297.
Hilgard, J. E., distribution of terrestrial magnetism in U. S., xxiv, 1.
King, W., loss of light from glass shades, xxx, 240.
Meteorites in the Vienna Collection, catalogue of, *Haidinger*, xxix, 300.

PLATES.

XXI.—Tides of the W. Coast of U. S., BACHE, 18 diagrams on 2 sheets, p. 1.—Co-tidal lines of the Atlantic Coast of U. S., BACHE, p. 14.—Co-tidal lines of the Pacific Coast of U. S., BACHE, p. 22.—Temperature, in and near the Gulf Stream, BACHE, 13 diagrams on two sheets, p. 29.—Earthquake waves of the W. Coast of U. S., BACHE, 7 diagrams on 1 sheet, p. 37.

XXII.—Microscopic Forms in the Sea of Kamtschatka, BAILEY, p. 1.—Plan of Development in the Geol. Hist. of N. Am., DANA, p. 335.—Glyptonotus antarctica, EIGHTS, 2 plates, p. 391.

XXIII.—Co-tidal lines of Diurnal and Semi-diurnal Tides of the Gulf of Mexico, BACHE, 6 diagrams on 2 sheets, p. 1.—Action of the Barometer during a Cyclonic Storm, REDFIELD, after SCHÖNBORN, 2 plates, p. 205.

XXIV.—Portrait of W. C. REDFIELD, (frontispiece.)—Distribution of Terrestrial Magnetism in the U. S., BACHE, 2 plates, p. 1.—Cyclones of the North Pacific Ocean, REDFIELD, p. 21.—Zodiacal light, JONES, 3 plates, p. 374.

XXV.—Co-tidal lines of the Atlantic Coast of U. S., BACHE, p. 47.—Winds of the W. Coast of the U. S., BACHE, 17 diagrams on 1 sheet, p. 52.—Measurement of Epping Base, BACHE, 3 diagrams on 1 sheet, p. 58.

XXVI.—Descent of the Sounding Weight and Line in Deep Sea Soundings, TROWBRIDGE, 2 diagrams on 1 sheet, p. 157.—Tidal Currents of New York Bay, near Sandy Hook, BACHE, 5 diagrams on 1 sheet, p. 334.

XXVII.—Pendulum for an Electrical Clock, BARNARD, p. 184.—Variation of the Water Level of Green Bay, Wisconsin, WHITTLESEY, p. 305.

XXVIII.—New Sounding Apparatus for Deep Sea Sounding, TROWBRIDGE, p. 1.—Two New Passes of the Rocky Mountains, BLAKISTON, 3 diagrams on 1 sheet, p. 320.

XXIX.—New Fossil shells from Nebraska, MEEK and HAYDEN, p. 33.—Discussion of Declinometer Observations made at Girard College, BACHE, 5 diagrams on 1 sheet, p. 36.—Apparatus for the Automatic Comparison of Time between distant stations, LANE, p. 43.—Distribution of Temperature in the Gulf Stream, BACHE, 13 diagrams on 1 sheet, p. 199.

XXX.—Geographical Distribution of Auroras, LOOMIS, p. 89.—Stereoscopic Advertisement, BLAKE, p. 304.—Distribution of Temperature in the Gulf Stream, BACHE, 30 diagrams on 4 sheets, p. 313.

ERRATA.

XXI.—P. 91, l. 9 from top, after 'from' *insert* 'the denominators of.'—P. 159, l. 7 from top, for '$0''.6$,' *read* '$0''.6$.'

XXII.—P. 1, l. 2 from bottom, for '*Dictyopyxis,' *read* 'Dictyopyxis; l. 4 from bottom, for 'Dicladia,' *read* '*Dicladia.'—P. 2, lines 1 and 2 from top, for '*Coscinodiscus,' *read* 'Coscinodiscus; l. 2 from top, for 'Rhizosolenia,' *read* '*Rhizosolenia;' l. 8 from top, for 'Difflugia,' *read* '*Difflugia;' l. 16 from top, for 'Eucyrtidium,' *read* '*Eucyrtidium,' in both cases.

XXIII.—P. 88, l. 2 from bottom, for 'northeast,' *read* 'east.'—P. 178, lines 3 and 5 from bottom, for 'Tannenschein,' *read* 'Sonnenschein.'

XXIV.—P. 123, lines 24 and 25 from bottom, *transpose* 'mica pseud.' and 'unalt'd scapolite.'—P. 313, l. 13 from top, for 'equalities,' *read* 'qualities.'—P. 314, l. 21 from bottom, for 'propositions,' *read* 'proportions.'—P. 428, l. 14 from bottom, for 'Loccopteris,' *read* 'Laccopteris.'—P. 443, l. 1 from bottom, for 'JOHN WARREN,' *read* 'JOHN WARNER.'

XXV.—P. 318, l. 23 from bottom, for 'of the south,' *read* 'of the north;' l. 8 from bottom, for 'and separates,' *read* 'separating;' l. 2 from bottom, for 'Nevada,' *read* 'Sierra.'—P. 375, l. 19 from top, after 'water,' *add* 'or metallic oxyd;' l. 18 from bottom, after 'the,' *insert* 'gaseous.'—P. 422, *dele* last paragraph of note.—P. 437, *dele* lines 5 and 6 from bottom.

XXVI.—P. 67, lines 4 and 5 from top, for '$\frac{2}{3}\dot{R} : 2\frac{1}{3}\ddot{R} :: 4\ddot{S}i : 1\dot{H}$,' *read* '$\frac{2}{3}\dot{R}^3 : 2\frac{1}{3}\ddot{R} :: 4\ddot{S}i : 3\dot{H}$,' and *dele* the index 3 after $(\frac{2}{3}\dot{R}^3 + \frac{7}{3}\ddot{R})$.—P. 108, l. 7 from bottom, for 'J. W. BILL,' *read* 'J. H. BILL.'—P. 158, l. 1 from top, for '95,' *read* '96.'—P. 169, lines 12 and 14 from bottom, for '*v*,' *read* '*V*.'—P. 170, l. 3 from bottom, after 'as much as,' *insert* 'one-fourth of.'—P. 236, l. 17 from top, for '80,' *read* '90.'—P. 298, l. 19 from bottom, for 'inside,' *read* 'irised.'—P. 305, in the title of Hayes's article, *dele* 'with a map.'—P. 331, l. 5 from bottom, after 'the beak of the,' *insert* 'smaller valve in the.'—P. 332, l. 19 from top, after 'identical,' *insert* 'with foreign forms.'—P. 333, l. 10 from top, after 'Cretaceous,' *insert* 'and perhaps Tertiary.'

XXVII.—P. 243, l. 1 from bottom, after 'Delphi Slate,' *insert* 'or Black Lingula shale, equivalent of the Genesee Slate or Marcellus shale of New York.'

XXVIII.—P. 236, l. 1 from top, for 'lightly,' *read* 'slightly;' l. 7, after 'other,' *insert* 'side is a.'—P. 240, l. 1 from top, after 'Actinocrinus,' *insert* 'grandis;' l. 16 from top, for 'obscure,' *read* 'obscurely.'—P. 241, l. 2 from bottom, for 'oval,' *read* 'oral.'—P. 244, l. 14 from top, for 'armbones,' *read* 'umbones;' l. 6 from bottom, for 'cyclostomus,' *read* 'Cyclostomus.'—P. 248, l. 23 from top, for 'p. c.,' *read* 'oz.'—P. 252, l. 28 from top, for '$\frac{1}{8}$,' *read* '$\frac{1}{8}$.'—P. 291, l. 1 from bottom, for 'ENGLEMANN,' *read* 'ENGELMANN.'—P. 353, l. 14 from bottom, for '3·8924 + 121·80,' *read* '3·8924 × 121·80;' l. 10 from bottom, for '4·6440 + 121·80,' *read* '4·6440 × 121·80.'—P. 356, l. 20 from bottom, after 'cultivation,' *insert* a period, and for 'where,' *read* 'Where;' l. 19 from bottom, *dele* 'then.'—P. 357, l. 10 from top, for 'sand,' *read* 'mud.'—P. 403, (in some copies,) l. 8 from bottom, for 'ANDREAS,' *read* 'ANDRAS.'

XXIX.—P. 272, l. 9 from bottom, for 'HENTZ,' *read* 'HEINTZ.'—P. 295, l. 2 from bottom, for '*Carten*,' read '*Garten*.'—P. 452, l. 11 from bottom, and p. 453, l. 14 from top, for 'LEIBER,' *read* 'LIEBER.'—P. 454, l. 13 from top, (in some copies,) for 'DAGURIN,' *read* 'DAGUIN.'

XXX.—P. 162, l. 16 from bottom, for 'many,' *read* 'some.'—P. 167, l. 23 from top, for 'best,' *read* 'test.'—P. 174, l. 18 from top, for 'point,' *read* 'part.'

GENERAL INDEX

OF

VOLS. XXXI—XL, SECOND SERIES.

NOTE.—In the statement of the number of the volume, the XXX (thirty) is omitted. The names of minerals are inserted only under the word MINERAL. The references to articles on Botany, Geology and Zoology, are grouped under these words, but at the same time are in general inserted in their places elsewhere.

A

Abbe, C., transparency of atmosphere, viii, 28
Brunnow's method for comet's elements, viii, 79.
Abbeville, human remains at, vi, 123, 402, viii, 297.
Abbott, F., notes on Argus, vii, 294.
Abd-el-Kader, sa Vie, noticed, vi, 407.
Absorption of gases by charcoal, vi, 411.
of carbonic acid, xl, 127.
and radiation of heat by gases, ii, 106.
Academy of Sciences, National, v, 462, vii, 446, 447, ix, 114, 234.
American, see AMERICAN and PHILADELPHIA.
Acclimation, *Nicklès*, i, 272, ii, 102, 103.
in Australia, iii, 433, viii, 300, ix, 84.
Acetate of ethyl, bromine and bromhydric acid, vi, 42.
Acetylene, *Berthelot* on, i, 118, v, 115.
from monobromid of ethylene, ii, 414.
Achromatic object glass, new, vi, 446.
Acid, cobaltic, *Winkler*, viii, 266.
Acids, monocarbon to dicarbon, viii, 265.
organic, ii, 412.
influence on germination, vii, 376.
Actæonidæ, *Meek*, v, 84.
Actinophrys Eichornii, *Clark*, viii, 331.
Adulteration with oil of turpentine, ix, 273.
Aerolites, see METEORITES.
Aether, v. Ether.
African explorations, noticed, i, 59, iii, 259, iv, 87, vii, 75, 87, 146, 445.
desiderata in, v, 242.
fossils, *Rubidge*, xl, 123.
Agardh, Species Algarum, noticed, vii, 286.
Agassiz, A., on tentacles of Medusæ, noticed, v, 300.
on Annelids, etc., noticed, v, 300.
on Echinoderms, noticed, viii, 130.
on star-fish, noticed, xl, 129.
Agassiz, E. C., Seaside Studies, noticed, xl, 392.
Agassiz, L., new Sauroid remains, iii, 138.
Gill on Squali, v, 299.
Megatherium, vi, 300.
report on Museum Comp. Zoology quoted, viii, 128.
on drift in Brazil, xl, 389.
contributions to Nat. Hist. of U. S., noticed, i, 295.
expedition of, to S. A., ix, 371, xl, 138, 389.
Agricultural chemistry; soil-analyses, ii, 233.
Liebig's, noticed, vii, 135.
Air-breathers of coal period, *Dawson*, noticed, vi, 430.
Airy's errors of observation, ii, 135.
Akin on combustion of invisible rays, ix, 347.
Albert coal, ix, 267, 356.
Albumen, with dextrin, etc., vi, 268.
Alcoholic radicals, replacement of, xl, 34; sulphids of, iv, 133.
Alcohols, contain copper, lead, tin, ii, 114.
manufacture of, vi, 403.
polyethylenic, i, 280.
polyglyceric, ii, 108.
thallic, ix, 220.
Aldehyde, *Lea*, viii, 114.
Algæ, *Agardh* on, noticed, vii, 286.
Alger, F., obituary, viii, 302, 449.
cabinet of minerals, viii, 301, ix, 224.
Algeria, *Fillias* on, noticed, v, 269.
Alkalimetry, *Johnson*, v, 279.
Alkaline carbonates, saponification by, ii, 117.
metal, new, i, 105.
Alkaloids, organic, separation of, iii, 415.
produced by putrefaction, vi, 416.
Allan, J. T., trees of Nebraska, ii, 165.
Allen, H., on N. A. Bats, noticed, ix, 116.
Allen, O. D., cæsium and rubidium, iv, 367.
equivalent and spectrum of cæsium, v, 94.
Allgemeine Encyclopädie der Physik, noticed, ii, 111.

Allison, E., antimony in N. Brunswick, v, 150.
Alloys of copper and zinc, i, 286, 423.
containing tungsten, vii, 118.
Almanac, National, noticed, v, 465, vii, 448.
Alpine Guide, *Ball's*, noticed, viii, 450.
Alps, coal in, viii, 122.
see also, *Monte Rosa*, *Mount Cenis*.
Althaus's Zusammenstellung der statistischen Ergebnisse, etc., vi, 272.
Alumina, carbonate of, *Parkman*, iv, 321.
from lime, magnesia and manganese, i, 112, 113.
Aluminum, v, 257, vii, 133.
bronze, v, 286, vii, 133.
compounds, ix, 345.
manufacture of, *Nicklès*, iv, 126.
separated from other bases, ix, 60.
Amber, from India, ix, 372.
fauna, diptera of, *Læw*, vii, 305.
America, *Squier's* documents on discovery of, i, 60.
American Academy, officers of, vi, 159.
memoirs and proceedings, vi, 314, 451, vii, 156, 450, ix, 116.
prize of, xl, 288.
Assoc. for Advancement of Sci., i, 303, 463.
geology, progress of, *Hunt*, i, 392.
Phil. Soc., iv. 447, vii, 156, 450, viii, 152, 451, xl, 292.
prize of, to Chase, ix, 114.
Amherst Coll., *Hitchcock's* reminiscences of, noticed, vii, 148.
Ammonia, atmospheric nitrite of, v, 423.
carbonate of, with magnesia salts, v, 115.
mercury, and nitric acid, compound of, ii, 374.
picric acid, and metallic bases, combinations of, i, 78.
ruthenium bases, iv, 133.
sulphocyanid of, vi, 417.
Ammonium amalgam, experiments with, xl, 160.
nitrite of, by heat, v, 113.
Amphibians, position of, among vertebrates, *Dana*, vii, 184.
Analysis, process of organic, viii, 387.
Anatomy, *Leidy's*, noticed, ii, 149.
Andersson, N. J., Botany of Galapagos, noticed, vii, 436.
Andes, journey across, xl, 136.
new pass across, viii, 147.
Andrews, E. B., rock oil, ii, 85.
on a seam of coal, viii, 194.
Angström, on Fraunhofer's lines, v, 411.
wave-lengths of, ix, 215.
Anhydrids, polyglyceric, ii, 108.
Aniline, from coal-tar, *Perkin*, ii, 267, 417.
dyes, v, 417, vi, 413, vii, 413.
Aniline-green, ii, 417.
Animal substances, petrifaction of, viii, 441.
preservation of, vii, 440.
Annelids, *A. Agassiz* on, noticed, v, 300.
fission in some, *Minor*, v, 35.
fossil, *Marsh*, viii, 415.
Anthropology, *Waitz's*, noticed, vii, 149.
Antozone, *Meissner* on, abstract of, vii, 325, viii, 18.
Appalachian mountain system, *Guyot*, i, 157.
region of Va., iv, 413.
Appleton's Annual Cyclopedia, v, 306, vi, 311, viii, 303.
new American Cyclopedia, i, 455, ii, 455, v, 304.
Arago, statue of, xl, 394.
Archæopteryx, v, 129, xl, 271.
Owen on, vi, 127.
Arctic Explorations, i, 51, ii, 451, iii, 263, iv, 95, 356, xl, 396.
minerals and fossils, v, 293.
plants, *Hooker's*, iv, 144.
Arequipa, slopes of, *Dana*, viii, 427.
Argentine republic, explorations in, vii, 88.
Arizona, iron beds of, xl, 388.
Arkansas, geol. survey, i, 124, 431, 455, ii, 233.
meteorite, new, ix, 372, xl, 213.
river basin, v, 225.
Arsenic, dimorphism of, *Cooke*, i, 191.
eating in Styria, iii, 126.
estimation of, vi, 269.
in sulphuric acid, v, 116.
in zinc, i, 142, ii, 380.
Reinsch's test for, ii, 117, 277.
series, polyatomic bases of, i, 420.
Arsenids of copper, iii, 191, v, 296.
Arseniuret of hydrogen, vii, 117.
Artesian well at Passy, iii, 151, 438.
Artificial anatase, brookite, rutile, viii, 424.
crystalline minerals, ii, 415.
diopside, *Brush*, ix, 132.
pearls, *Nicklès*, iii, 120.
protein substances, iii, 113.
Ashburton's address to Royal Geog. Soc., iv. 358.
Asia, northeastern, botany of, iv, 286.
Asphaltum, in California, ix, 101.
Mexico, ix, 309.
Aspirator and blower, *Lea*, iv, 245.
Assaying, translation of *Bodeman* and *Kerl* on, noticed, xl, 289.
Assiniboine exploring expedition, i, 303.
Asterism in mica, v, 259.
Asteroids, tables of, ii, 133, 291, iii, 288.
(41), Daphne, v, 144.
(53), Calypso, iii, 435.
(56), Melete, ii, 438, iv, 420, v, 145.
(57), Mnemosyne, ii, 132, iii, 288.
(58), Concordia, ii, 132, iii, 288.
(59), Olympia, i, 136, ii, 132, iii, 288, 435.
(60), Danaë, i, 136, ii, 132, iii, 288.
(61), Echo, i, 136, ii, 132, 291, iii, 144, 288.
(62), Erato, i, 136, ii, 132, iii, 288.
(63), Ausonia, ii, 132, iii, 288.
(64), Angelina, ii, 132, iii, 288.
(65), Cybele, ii, 132, iii, 288.
(66), Maia, ii, 132, iii, 287, 288.
(67), Asia, ii, 132, 291, iii, 288.
(68), Leto, ii, 132, 291, iii, 288.
(69), Hesperia, ii, 132, 291, iii, 288.
(70), Panopea, ii, 132, 291, iii, 288, v, 460.
(71), Feronia, iii, 287, 288, 436, iv, 420.

Asteroids, (72), Niobe, ii, 438, iii, 144, 288, iv, 430.
(73), Clytia, iii, 436, iv, 430.
(74), Galatea, iv, 430, v, 145.
(75), v, 145.
(76), Freya, v, 146, 460.
(77), v, 460.
(78), Diana, vi, 143.
(79), Eurynome, vi, 443, vii, 140, 147.
(80), Sappho, viii, 432.
(81), Terpsichore, ix, 111.
(82), Alcmene, ix, 231.
(83), xl, 134.
(84), xl, 392.
Astronomical Assoc. of Chicago, v, 301.
of France, viii, 148, xl, 288.
observations, errors of, *Airy* on, noticed, ii, 135.
Gilliss's, 1861, noticed, v, 146.
with spectroscope, v, 71, 407.
photography, *Rutherfurd*, ix, 304.
introduced by Bond, ix, 369.
Soc. of Lond., ix, 364.
Astronomy, Hindu, transl. of Sûrya-Siddhânta, i, 298.
Bond's researches in, ix, 364.
Chauvenet's, vi, 159, 378.
Loomis's, xl, 140.
see further, AURORA, COMET, METEOR, MOON, PLANET, SHOOTING STAR, SOLAR, STAR, SUN.
Atlantic telegraph, iii, 118, 265, vii, 440.
temperature of, *Foey*,, iii, 268.
Atmosphere, currents of, viii, 399.
extent of, *Challis* on, iv, 434.
motions of, *Ferrel*, i, 29.
radiation through, vi, 99.
transparency of, *Abbe*, viii, 28; *Hunt*, v, 388.
Atmospheric refraction, *Challis* on, iv, 434.
Atoll of Ebon, *Doane*, i, 318.
Atomic constitution of liquids, vi, 409.
weights, *Gibbs*, i, 246; *Rose*, viii, 324.
Attfield, on spectrum of carbon, vii, 408.
Aurora, an electric discharge, *Marsh*, i, 311.
De La Rive on Marsh, iii, 294.
Australis, coincident with A. Borealis, *Loomis*, ii, 81.
at Sacramento, 1860, *Logan*, ii, 148.
of Aug. and Sept. 1859, and auroras generally, *Loomis*, ii, 71, 318.
of Aug. 1865, *Twining*, xl, 285.
Auroral arch, April 1863, v, 461.
arches, height of, *Newton*, ix, 286, 371.
beams, and electric currents, *Loomis*, iv, 34.
Austin, C. F., Sphagna of N. Jersey, v, 252.
Australia, acclimation in, iii, 433, viii, 300, ix, 84.
Australian flora, *Bentham* and *Müller's*, noticed, vi, 290, ix, 110.
explorations, vii, 84.
gold, iv, 212.
heat, v, 49.
meteoric iron, ii, 441, 442, iv, 155.
seaweeds, *Harvey* on, vii, 286.
zinc, i, 371, viii, 277.
Aviculidæ, *Meek*, vii, 212.
Aye-Aye, *Owen* on, noticed, vi, 294.
Azoic rocks in Michigan, *Kimball*, ix, 290.
see further, GEOLOGY.

B

Babbage's Passages from the life of a Philosopher, viii, 303.
Bache, A. D.,, influence of moon on magnetic needle, i, 98.
declinometer observations, i, 197.
horizontal magnetic force, iv, 261, 373.
moon's influence on, iv, 381.
magnetic survey of Pa., etc., v, 359.
Associate of French Academy, ii, 455.
Bache, R. M., sea-sickness, iv, 17.
Bacon, Roger, works edited by Charles, iii, 110, iv, 128.
Bahr, on wasium, vii, 116.
Bailey, L. W., antimony in N. Brunswick, v, 150.
appointed Prof., Univ. N. Brunswick, ii, 304.
report on Geol. of N. B., noticed, ix, 356.
Baily's beads, *Blunt*, ii, 292.
Baird's American Birds, noticed, viii, 303, 431, ix, 115, xl, 142.
Balch, D. M., orthite from Mass., iii, 348.
tellurbismuth from Ga., v, 99.
Ball's Alpine guide, noticed, viii, 450.
Baphetes, vi, 430.
Barker, G. F., gun-casting at Pittsburgh, vii, 296.
Barnard, F. A. P., Humphreys and Abbot's report on Mpi. river, vi, 16, 197.
force of gunpowder, vi, 241.
Barometer, *Lewis*, xl, 233.
fluctuations of, *Chase*, viii, 380.
gunnery serving as, viii, 299.
indicating earth's rotation, etc., vii, 409.
resisting ether, viii, 153.
Barometric maxima and minima, viii, 148.
Barrande, J., Primordial fauna and Taconic system, i, 212.
Défense des Colonies, noticed, xl, 392.
Barrow's mathematical works, ii, 299.
Bartlett, W. P. G., interpolation in physics and chemistry, iv, 27.
Baryta, hydrate of, ii, 118.
solubility of sulphate of, ix, 90.
Bates, on mimetic analogy in Lepidoptera, reviewed, vi, 285.
Baudrimont's protosulphid of carbon, i, 281.
Bauer, on replacement of hydrogen in ether, ix, 95.
Baxendell, periodic changes in the magnetism of the earth, viii, 269.
Bayberry tallow, *G. E. Moore*, iii, 313.
Beatriceæ, *Hyatt*, ix, 261.
Becker and Sons' apparatus noticed, ii, 298.
Beilstein, on coloration of flame, vi, 116, 267.
Belgian bone-cave, ix, 223.
Bell, J. L., aluminum and aluminum-bronze, vii, 133.
Bellemare on Abd el-Kader, noticed, vi, 407.
Bentham, G., Linnæan Society address, iv, 286.
Flora Hongkongensis, noticed, ii, 124.
and *Hooker*, Genera Plantarum, noticed, v, 134.

Bentham, *G.* and *Müller*, Flora Australiensis, noticed, vi, 290, ix, 110.
Benzoic acid, from kinic, v, 291.
Berberin in Hydrastis Canadensis, iii, 43.
Berthelot, on acetylene, i, 118, v, 115.
on chemical synthesis, noticed, i, 270, ii, 103.
on the alcohols, noticed, vi, 407.
made Prof. in France, xl, 394.
Berthier, P., obituary of, iii, 108.
Bessemer's process, *Tunner* on, v, 421.
Bibliography, by *Nickles*, i, 155, 275, ii, 103, iv, 128, v, 269, vi, 407, ix, 86.
Big Black river basin, v, 233.
Bigelow, *A.*, freezing of water, ii, 205.
Bigsby's Cambrian and Huronian formations, noticed, vi, 277.
Billings, *E.*, age of red sandrock of Vt., ii, 232, 454, iii, 100, 370, 421.
notice of *Hitchcock's* Geol. of Vt., iii, 416.
date of Geol. report of Wis., iii, 420.
genus Centronella, etc., vi, 236.
on new Silurian fossils, noticed, iii, 136, 279, iv, 136.
Binary stars, orbits of, *Kirkwood*, vii, 233.
Binder, *B.*, conversion of phenylic into rosalic acid, iv, 408.
phenate transformed to rosalate of lime, iv, 408.
Binocular microscope, *Tolles's*, viii, 111, ix, 212.
Wenham's, i, 110, viii, 111.
vision, and idea of distance, i, 109.
Biot, J. B., obituary of, iii, 441, iv, 120.
Bird, reptilian, v, 129, vi, 318.
Bischof, on a new earth, viii, 419.
Bisulphid of carbon prisms for spectral analysis, iv, 299, v, 356, 408.
Bitumens and pyroschists, history of, *Hunt*, v, 157.
Blake, *E. W.*, *Jr.*, caesium and rubidium in triphyline, iii, 274.
Blake, *W. P.*, to explore Japan, iii, 155.
iron regions of Arizona, xl, 388.
Blanchard, on redevelopers, vi, 417.
Blandy, *J. F.*, copper range of Lake Superior, iv, 112.
Blast for laboratory, ii, 425.
Bleu de Paris, ii, 416.
Bliss, *J. S.*, buried branches in Illinois, ix, 95.
Bliss, *P. C.*, explorer in S. America, vii, 88.
Blood, animalcules in the, viii, 293.
corpuscles seen in retina, i, 325, 417.
electricity of, *Scoutteten*, viii, 110.
Blowpipe beads, crystals in, *Emerson*, vii, 414.
Bloxam, on arsenic in sulphuric acid, v, 116.
Blume, C. L., obituary, iii, 428.
Blunt, *E.*, Baily's beads, ii, 292.
Blyth's edition of Liebig, noticed, vii, 135.
Blytt, M. N., obituary, v, 449.
Bodemann, on assaying, translation, noticed, xl, 289.
Bohlig, on atmospheric nitrite of ammonia, v, 423.
Bologna museum, iii, 151.
Bond, *G. P.*, comet II, 1861, ii, 255, 261, 439.
Bond, *G. P.*, companion of Sirius, iii, 286.
new asteroids, iii, 287, 288.
comet III, 1861, iii, 289.
Encke's comet, iii, 144, 290.
great comet of 1858, iv, 292.
obituary, ix, 235.
eulogy on, *De La Rue*, with award of medal, ix, 364.
Bone bed in red sandstone, ii, 41.
v. also Man.
Boott, *F.*, illustrations of Carex, noticed, i, 131, iii, 141, 430, iv, 292.
obituary, *Gray*, vii, 288.
Borates, analysis of, v, 418.
Borneo, bone-cave in, viii, 148.
Boron compounds, *Frankland* on, i, 276, v, 115.
Borrer, W., obituary, v, 449.
Boston Soc. Nat. Hist., proceedings, i, 156, 310, iii, 160, 304, iv, 305, v, 156, vi, 452, vii, 447.
Walker prizes, xl, 137.
new Museum of, viii, 300.
Botanical necrology, *Gray*, 1860, i, 461; 1861, iii, 427; 1862, v, 449; 1863, vii, 288.
Botanical works, notices of:
Agardh, species Algarum, vii, 286.
Andersson, Galapagos Is., vii, 436.
Annals of Botan. Soc. of Canada, i, 303, ii, 127, iii, 432.
Asia, Northeastern, botany of, iv, 286.
Bentham, Flora Hongkongensis, ii, 124.
and *Hooker*, Genera Plantarum, v, 134.
and *Müller*, Flora Australiensis, vi, 290, ix, 110.
Boott, illustrations of Carex, i, 131, iii, 141, 430, iv, 292.
Braun, Polyembryonie, etc., i, 131.
Marsilia and Pilularia, viii, 127.
Brunet, Plantes de Michaux, etc., vii, 286.
Cosson and *St. Pierre*, Flore des environs de Paris, vii, 434.
Darwin, orchids fertilized by insects, iv, 138, 420.
Dimorphism, iv, 285, vi, 279.
Climbing plants, xl, 273.
Decaisne, origin of varieties, vi, 432.
De Candolle, *A.*, Prodromus, iii, 430, iv, 288, viii, 290, ix, 359.
fruit of oaks, v, 430.
variation, etc., of species, v, 431.
De Candolle, *C.*, cork, iv, 287.
Durand, vites Bor. Amer., v, 445.
Eaton, Filices Wrightianæ, i, 130.
Göthe, metamorphosis of plants, viii, 126.
Gray, Manual of Botany, v, 448.
Grisebach, Flora of W. Indies, 1, 129, iv, 283, ix, 108.
Plantæ Wrightianæ, i, 129.
Hale, Flora of Wisconsin, i, 130.
Harvey, Phycologia Australica, vii, 286.
Thesaurus capensis, i, 128, vii, 286, xl, 126.
and *Sonder*, Flora capensis, i, 128, v, 444, xl, 125.
Hervey, Plants of New Bedford, Mass., i, 130.
Hooker, *J.*, Welwitschia, vi, 434.

BOTANICAL WORKS, notices of:
Hooker, J. D., Arctic plants, iv, 144.
Cedars of Lebanon, etc., iv, 148.
N. Zealand Flora, ix, 359.
Hooker, W. J., species Filicum, i, 132, v, 138, viii, 429.
second century of ferns, i, 132.
Karsten, Flora Columbiæ, ii, 289.
Kindberg, Monographia Lepigonorum, vii, 435.
Lecoq, Vie des Fleurs, iv, 128.
Lesquereux, Botanical report on Arkansas, i, 431.
Linnæan Soc., Journal of, i, 443, ii, 127, 289, iii, 143, iv, 285, ix, 360.
Lyall, Botany of Brit. America, vii, 287.
Martius, Flora Brasiliensis, ii, 289, iv, 288, vi, 130, vii, 283, ix, 360.
Mettenius, on Ferns, i, 133.
Filices Horti Lipsiensis, i, 134.
Miquel, Journal de Botanique Neerlandaise, iii, 140.
Annales Musei Bot., vii, 281.
Mitten, Brit. American Bryology, viii, 291.
Müller, Plants of Victoria, vii, 286.
Newberry, Flowers and Ferns of Ohio, i, 130.
Oliver, Structure of Anther, iv, 282.
Wood-cells of Hammamelideæ, iv, 282.
on Loranthaceæ, vi, 291.
Lessons in Botany, viii, 124.
Parry, Rocky Mt. Flora, iii, 141, vi, 129.
Prior, Names of Brit. Plants, vii, 433.
Provancher, Flore Canadienne, v, 445.
Ravenel, Fungi Caroliniani, i, 130.
Regel, Monographia Betulaceæarum, iii, 139.
St. Louis Transactions, vi, 128.
Schott, Aroideæ, iii, 142.
Seemann, Vegetable products of Fiji Is., v, 446.
Squier, tropical fibres, iii, 140.
Sullivant, Musci cubenses, iii, 141, 429.
Icones Muscorum, viii, 291.
Tatnall, Plants of Newcastle Co., Del., i, 130.
Thwaites, Plants of Ceylon, iii, 432, xl, 125.
Tuckerman, Lichenes Cubae, vii, 436.
Vilmorin-Andrieux, Des Fleurs de Pleine Terre, vii, 435.
Walpers, Ann. Botan. systemat., by *Müller*, iii, 140, xl, 126.
Weddell, Cynomorium coccineum, iii, 139.
Chloris Andina, iv, 150.
Wood, class book of Botany, ii, 127.
BOTANY:—absorption of carbonic acid, xl, 127.
Ammobroma Sonoræ, xl, 126.
Ampelopsis quinquefolia, *Gray*, vi, 130.
Antherology, *Gray*, iv, 282.
Bonapartea juncea, iii, 432, vii, 147.
Calluna vulgaris, in N. America, ii, 290, iii, 22, viii, 122, 428, ix, 228.
Caricography, *Dewey*, i, 23, ii, 38, v, 57, ix, 69.
Climbing plants, *Darwin*, xl, 273.
Coriaria thymifolia, vii, 287.
BOTANY—
Darlingtonia Californica, v, 136.
dimorphism in plants, iv, 285, 419, vi, 279, ix, 101, 104, 360.
Dioico-dimorphism in primrose, iv, 419, ix, 101.
Equiseta, geogr. distrib. of, viii, 126.
in gneiss, xl. 124
Euphorbia, genus in, *De Candolle*, iv, 288.
Gaultheria, name of, vii, 287.
germination affected by ozone, etc., vii, 373.
Gymnosperms, structure of flowers of, vii, 284.
Harvard University herbarium, viii, 128, ix, 224.
hybrids, return of, to parent forms, ix, 107.
Hydrastis Canadensis, berberin in, iii, 43.
leaves, gas evolved by, v, 121.
Myrica cerifera, wax of, *Moore*, iii, 313.
Najas major, etc., Salina, N. Y., ix, 106.
Nebraska, forest trees of, ii, 165.
nomenclature, vii, 278.
Orchids, structure, etc., of, iv, 138, 420, vi, 292.
organisms in closed vessels, xl, 126.
parthenogenesis, vi. 292.
Paullinia sorbilis, vi, 129.
radicle-ism, *Gray*, viii, 125.
Rocky Mts., plants of, *Parry's* collection, iii, 141, 237, 404, iv, 249, 330, v, 137, vi, 129.
Saururus cernuus, rotation in pith-cells of, iv, 400.
Scirpi of U. S., new, viii, 289.
Sphagna of N. J., *Austin*, v, 252.
Tenn. yellow wood, *Gray*, xl, 273.
varieties in plants, *Decaisne* on, vi, 432.
Va. creeper, tendrils of, v, 445, vi, 130.
Welwitschia mirabilis, vi, 434, xl, 273.
Böttger, on nitrite of ammonium, v, 114.
spectral analysis, v, 414.
preparation of ozone, v, 111.
Boussingault's Agronomie, etc., v, 270.
on gas evolved by leaves, v, 121.
on absorption of carbonic acid, xl, 127.
Bowman's Medical Chemistry, noticed, vii, 302.
Brachyura, classification of, v, 139.
Bradley, F., on meteors at Chicago, Aug. 1860, i, 136.
Bradley, F. H., trilobites of Wisc. 'Potsdam,' i, 294, ii, 149.
geol. excursion proposed by, xl, 125.
Brain, chemical constitution of, xl, 113.
of man and monkeys related to classification, *Wagner*, iv, 188, discussed in Brit. Assoc., iv, 440.
Brande and *Taylor's* Chemistry, vi, 311.
Braun, A., Polyembryonie, etc., noticed, i, 131.
on Marsilia, etc., noticed, viii, 127.
Braun, on molybdenum, vi, 268.
on new cobalt compound, viii, 113.
Bravais, A., obituary, vi, 401.
Brazil, *Martius's* Flora of, ii, 289, iv, 288, vi, 130, vii, 283, ix, 360.
drift in, *Agassiz*, xl, 389.
Bree's Review of Darwin, noticed, i, 449.

Bréguet's Electric Telegraphy, noticed, v, 269.
Breithaupt, rhombohedral and dimetric crystals biaxial, viii, 426.
Brewer, W. H., Darlingtonia Californica, v, 136.
explorations by, in Sierra Nevada, viii, 298, ix, 10.
Brewster's theory of lustre, i, 342.
Brit. America, *Lyell's* botany of, vii, 287.
Mitten's bryology of, viii, 291.
Brit. Assoc., 31st meeting, ii, 363; 32d, iv, 432; 33d, vi, 309; 34th, viii, 301, 446; 35th, xl, 139, 394.
Columbia, *Palmer* on, viii, 146.
Bromhydric acid on acetate of ethyl, *Crafts*, vi, 42.
Bromid of ethylene, reaction of sulphid of potassium on, vii, 390.
potassium a narcotic, viii, 267.
Bromine on acetate of ethyl, *Crafts*, vi, 42.
Bronn, H. G., obituary of, iv, 304.
Brun's Fraudes du Vin, vi, 408.
Brunet, on Michaux' plants, etc., vii, 286.
Brunnow's method for parabolic orbits, viii, 79.
Brush, G. J., Tissier's process for iron, i, 120.
Supplements to Dana's Mineralogy, i, 354, iv, 202.
crystalline hydrate of magnesia, ii, 94.
carbonate of lime at high temperature, ii, 112, vi, 278.
amblygonite from Me., iv, 243.
triphyline at Norwich, Mass., iv, 402.
metallurgical abstracts, v, 118, 286, 420, vi, 272.
mineralogical abstracts, v, 126, 285, 296, 426, vii, 270, viii, 115.
on California Geol. Report, vi, 118.
childrenite, vi, 122, 257.
Tucson meteoric iron, vi, 152.
Buchner's Die Meteoriten, vi, 445.
tephroite, vii, 66.
artificial diopside, ix, 132.
Buchner's Die Meteoriten, noticed, vi, 445.
Budding in insect larves, ix, 110, 361.
Building materials, preservation of, vi, 406.
Bunsen, on new alkaline metal, i, 105.
on cæsium and rubidium, ii, 409, vi, 114, 413.
on lithia in meteorites, iii, 273.
spectroscope of, iii, 440.
on thermo-electric batteries, ix, 219.
Busk, G., Gibraltar caves, viii, 282.

C

Cadmium, ammonia-picrate of, i, 83.
Cæsia, tartrates of, vii, 70.
Cæsium, ii, 409, iv, 367, vi, 413.
equivalent and spectrum, v, 94.
in triphyline, *Blake*, iii, 274.
in hot springs, viii, 447, ix, 13.
Cahours, on American petroleum, vi, 413.
California, deep placers of Yuba R., xl, 1.
earthquake in, xl, 366.
explorations of peninsula of, v, 236.
geological survey, reports of, noticed, i, 124, iii, 155, iv, 157, vi, 118, vii, 82, 427, viii, 256, 298, ix, 10, 99, xl, 141.
glaciers in, viii, 258.
maps of, proposed, vii, 83.
mastodon tooth from, iv, 135.
meteorological record, Sacramento, ii, 147, iii, 293.
mountains of, vi, 123, vii, 81, viii, 258, 298, ix, 10.
petroleum of, *Silliman*, ix, 101, 341.
quicksilver mines of, *Silliman*, viii, 190.
rising of springs in, viii, 187.
volcanic eruptions in, xl, 264.
Calvert, alkaloids by putrefaction, vi, 416.
Campbell, J. L., solar halo, xl, 394.
Canada, antimony in, vii. 405.
botanical society of, i, 303, ii, 127, iii, 432.
flora of, by *Dawson*, noticed, iii, 278.
" *Provancher*, noticed, v, 445.
fossils of, by *Dawson*, iii, 278.
geological report, noticed, i, 122, v, 134, vi, 428, ix, 224.
Laurentian fossils of, vii, 272, 431, xl, 344.
mineral. and geol., by *Chapman*, noticed, vii, 432.
Catalogue of Minerals and Crystalline Rocks of, noticed, v, 134.
Canadian Naturalist and Geologist, noticed, i, 310, viii, 449.
Cancerine, a fertilizer, ix, 372.
Cannonading heard 125 miles, iii, 154.
Cape Breton Coal-measures, *Lesley*, vi, 179.
Cappocci, obituary of, vii, 304.
Carbon, *Baudrimont's* protosulphid of, i, 281.
bisulphid of, prisms, iv, 299, v, 356, 408.
in iron, determination of, iii, 273.
spectrum of, vii, 408.
Carbonates, alkaline, saponification by, ii, 117.
of alumina, glucina, iron, chromium, etc., iv, 321.
of ammonia, magnesia salts with, v, 115.
of lime at high temperature, ii, 112.
in a meteorite, xl, 213.
of soda, on cast iron, i, 120.
Carbonic acid, absorption of, by plants, xl, 127.
determination of, in organic analysis, iii, 415.
influence on vegetation, vii, 376.
Carboniferous, see GEOLOGY.
Cariboo gold district, viii, 146.
Caricography, *Dewey*, i, 23, ii, 38, v, 57, ix, 69.
Carinthian lake-habitations, ix, 372.
Carius, on hydrogen with iron, iii, 272.
sulphids of alcohol radicals, iv, 133.
Caron, on magnesium, vi, 114.
on tungsten in alloys, vii, 118.
on propyl-phycit, xl, 115.
Carré's machine for making ice, vi, 405.
Carrington, on Sun spots, viii, 142.
Caspian, volcanic island in, viii, 118.
Casseday, S. A., obituary, i, 155.
Cassels, J. L., meteorite of Hindostan, ii, 401.
Catalysis, *Rose* on, viii, 319.

Catskill and Chemung groups, identification of, *Winchell*, v, 61.
Cave-deposits, see MAN.
Cedars of Lebanon, *Hooker* on, iv, 148.
at Paris, *Gray*, ix, 226.
Celestial dynamics, *Mayer*, vi, 261, vii, 187, viii, 239, 397.
Cephalization, *Dana*, vi, 1, 159, 321, 440, vii, 10, 157.
Ceramic arts of Great Exhibition, v, 268.
Cerium, separation of, vii, 352, 354.
Ceylon plants, *Thwaites* on, iii, 432, xl, 125.
Chacornac, on light of Moon and Venus, xl, 287.
Chadbourne, P. A., effect of ice in water boiling in glass vessels, iv, 130.
Challis, on atmospheric refraction, iv, 434.
extent of atmosphere, iv, 434.
zodiacal light, iv, 435.
Chambers's Encyclopedia, i, 455, vii, 302, ix, 115, xl, 142, 396.
Chancel's determination of phosphoric acid, i, 279, 281.
Chancourtois' Vis Tellurique, noticed, v, 270.
Chandler, C. F., new metal in platinum, Oregon, iii, 351.
tin ore in Mexico, ix, 349.
Chapman, E. J., Minerals and Geology of Canada, noticed, vii, 432.
Charcoal, absorption of gases by, vi, 411.
formed under pressure, viii, 441.
Charles, E., on Roger Bacon, noticed, iii, 110, iv, 128.
Chase, P. E., barometer indicating earth's rotation, etc., vii, 409.
barometric maxima and minima, viii, 148.
a resisting ether, viii, 153.
aërial tides, viii, 226.
terrestrial magnetism, viii, 373.
cause of barometric fluctuations, viii, 380.
terrestrial magnetism a mode of motion, ix, 117.
gravity and magnetism, ix, 312.
gravity and magnetic declination, xl, 83.
gravity and magnetic inclination, xl, 166.
mechanical polarity, xl, 313.
prize to, ix, 114.
Chauvenet's Astronomy, noticed, vi, 159, 378.
Chelonia, respiration of, *Mitchell* and *Morehouse* on, noticed, vi, 141.
Chemical action, energy of, *Kolk*, ix, 92.
analysis by dialysis, iii, 412.
of solar atmosphere, i, 103.
a process in, *Gibbs*, ix, 58.
apparatus of Becker & Sons, ii, 298.
equivalents, relations of, *Lea*, iv, 387.
Stas on, i, 419.
Physics, *Cooke's*, noticed, i, 149.
synthesis, i, 270, ii, 103.
theory of interpenetration, v, 78.
types, theory of, *Hunt*, i, 256, 460.
Chemistry, *Bowman's* Medical, vii, 302.
Brande & Taylor's, vi, 311.
history of, connected with *H. Rose*, viii, 305.
Chemistry, interpolation in, *Bartlett*, iv, 27.
Liebig's, noticed, vii, 135.
Miller's, noticed, vii, 135.
of germination, *Schultz* on, v, 290.
of natural waters, *Hunt*, ix, 176, x, 43, 193.
Cheney, ancient works in Western N. Y., ii, 149.
Chess Knight, *Haldeman's* Tour of, xl, 291.
Child, G., organisms in closed vessels, xi, 126.
Chilton, J. R., obituary, vi, 314.
Chimenti pictures, *C. A. Joy*, viii, 199.
China, recent English Surveys in, iv, 363.
Chiton, species of, viii, 185, 431.
Chlorhydric acid manufacture, vi, 269.
dissolves sulphate of lime, v, 283.
Chlorids, violet flame of, v, 412.
Chlorinated organic bodies, iv, 133.
Chlorine manufacture, vi, 269.
salts, ii, 108.
Chloritic minerals, *J. B. Pearse*, vii, 221.
Chloro-chromic acid, spectrum of, viii, 109.
Chlorous acid, density of vapor, i, 277.
Christople on phosphorus spectrum, vi, 116, 267.
Christy, cave-deposits in France, viii, 145.
Chromium, ammonia-picrate of, i, 84.
separation of, *Gibbs*, ix, 58.
sesquioxyd, carbonate of, iv, 321.
Church, W. S., ascent of Candarave, iv, 300.
Cicada septendecim, *E. C. Herrick*, iii, 423.
Clapp, A., obituary, v, 306, 450.
Clark, A., on μ Herculis, v, 301.
sun and stars photometrically compared, vi, 76.
takes Lalande prize, v, 301.
Clark, H. J., Lucernaria, v, 346.
Tubularia, vii, 61.
Actinophrys Eichornii, viii, 331.
Prodromus of Lucernaria, noticed, v, 459.
Classification of animals by cephalization, *Dana*, v, 65, vi, 1, 321, 440, vii, 10, 157.
of Herbivores, vii, 157.
of Insects, vii, 13.
of Mammals, *Dana*, v, 65, vi, 8.
by series, *Scheil*, ii, 48.
Claus, on ammonia-ruthenium bases, iv, 133.
Climate near water, *Lippincott*, ix, 372.
paleozoic, *Hunt*, vi, 396.
Climbing plants, *Darwin*, xl, 273.
Coal in Alps, viii, 122.
in Mexico, *Manross*, ix, 309.
near Peking, *Williams*, viii, 119.
in Venezuela, viii, 288.
see further, under GEOLOGY.
Coal-gas, flame of, affected by music, i, 416.
tar, coloring matters from, ii, 267, 416.
a preservative, vi, 406.
Coan, T., on Kilauea, v, 296, vii, 415, xl, 122.
Coast Survey Report, noticed, v, 239, vii, 95, ix, 115.
Cobalt, ammonia-picrate of, i, 82.
compound, new, viii, 113.

Cobalt, separation from nickel, etc., *Gibbs*, ix, 61, 63, 64.
yellow, lead-salt corresponding to, i, 226.
Cobaltic acid, *Winkler* on, viii, 266.
Collier, *P.*, indirect determination of potash and soda, vii, 344.
Collodion of *Emerson*, ii, 426.
of *Jeanrenaud*, v, 419.
Color and distance, perception of, ii, 184.
of blood-globules, i, 417.
of flames, *Merz* on, i, 105.
by phosphorus, vi, 116, 267.
produced by absorption, mingling of, i, 109.
Colorado River, *Ives's* Report on, iii, 387.
Colored media, vision through, i, 418.
Coloring matters from aniline, v, 417, vi, 413, vii, 413.
coal-tar, *Perkin*, ii, 267, 416.
naphthaline, etc., *Lea*, ii, 211, iii, 229, viii, 360.
Combustion by invisible rays, ix, 347.
Comets, features of, *Marsh*, iii, 39.
elements of orbits, *Watson*, v, 218.
Brunnow's method, *Abbe*, viii, 79.
Donati's, ii, 54, iv, 292.
Encke's, iii, 144, 290.
Tempel's, viii, 432.
of 1860, i, 126.
I of 1861, i, 463, ii, 134.
II of 1861, ii, 252, 305, 439.
III of 1861, iii, 289.
I of 1862, iv, 430.
II of 1862, iv, 294, 431.
III of 1862, v, 460.
I of 1863, v, 461.
II of 1863, vi, 143.
III of 1863, vi, 143.
IV of 1863, vii, 292.
V of 1863, vii, 293.
VI of 1863, vii, 293.
II of 1864, viii, 432.
III of 1864, ix, 111.
IV of 1864, ix, 232.
V of 1864, ix, 370.
I of 1865, xl, 132.
Commaille, on reduction of silver waste, vi, 417.
Conchology, Amer. Journal of, ix, 116, 375, xl, 143.
contributions to, by *Tryon*, v, 297.
history of, in U. S., iii, 161.
works on, published by Smithsonian Inst., iv, 448.
See further, under ZOOLOGY.
Condensation, *Magnus*, viii, 109, 110.
fractional, *Warren*, ix, 327.
Connecticut River sandstone, footmarks of, *Hitchcock*, vi, 46, xl, 390.
Deane on, vi, 126.
fossil larvæ in, iii, 451.
Connecticut valley glacier, v, 249.
Conrad, *T. A.*, Eocene lignite of U. S., xl, 265.
miocene shells, noticed, v, 428.
Cooke, *G. H.*, white limestone of N. J., ii, 208.
geol. report of N. J., noticed, ix, 359.
Cooke, *J. P.*, *Jr.*, dimorphism of arsenic, etc., i, 191.
Cooke, *J. P.*, *Jr.*, spectroscope, iv, 299, vi, 266, xl, 305.
octahedral galena, v, 127.
childrenite, vi, 258.
photographic abstracts, vi, 416.
tartrates of cæsia, etc., vii, 70.
photographic dry process, vii, 123.
projection of spectra, xl, 243.
chemical physics by, noticed, i, 149.
Cooper, *J. G.*, reply to Gov. Stevens, i, 302.
Cope, *E. D.*, Jan's Prodromus of Ophidia, v, 455.
Copper, alloys of, i, 286, 423.
ammonia-picrate of, i, 81.
arsenids of, iii, 191, v, 296.
pseudomorphous after aragonite, iv, 209.
deposit on, in *Reinsch's* test, ii, 117.
electrolytic precipitation of, as a method of analysis, ix, 64.
in alcoholic spirits, *Hayes*, ii, 114.
of L. Superior, i, 359, iii, 320, iv, 112, vii, 431.
sulphate of, as a preservative, ii, 274.
Copper-glance, from Tenn., iv, 209.
pseudomorphous after galena, i, 362, iii, 194.
Copper-nickel, iv, 209.
Coral, glass, of Japan, *Stimpson*, v, 458.
Cordier, P. L. A., obituary, ii, 101.
Correlation of forces, *Youmans* on, noticed, ix, 220.
Cosson's Flore de Paris, noticed, vii, 434.
Coste, on production of sexes, xl, 139.
Cotopaxi, slopes of, *Dana*, viii, 427.
Cotton, culture of, *Nicklès*, iv, 127.
Coues, on Ornithology of Labrador, iii, 298.
Coulvier-Gravier, on shooting stars, Aug. 1860, i, 137.
Cournot, works by, noticed, iii, 111, iv, 128.
Crafts, *J. M.*, bromine and bromhydric acid with acetate of ethyl, vi, 42.
organic compounds of silicon, vi, 115.
reaction of a sulphid of potassium on bromid of ethylene, vii, 390.
replacement of alcoholic radicals, xl, 34.
etherification, xl, 40.
Craig, *B. F.*, products from combustion of gunpowder, i, 429.
Cresson's Hymenoptera, noticed, viii, 294, ix, 363.
Cretaceous, see GEOLOGY.
Crinoid, genus Erisocrinus, ix, 173, 350.
Croconic acid, iii, 274.
Croll, *J.*, heat-vibrations, viii, 267.
Crookes, on thallium, ii, 411, iv, 275, 409, v, 273, viii, 266.
Cross, *R.*, journey across Andes, xl, 136.
Crustacea, classification of, v, 139.
Carboniferous and Devonian, vi, 277.
Crustacean, new Potsdam, v, 295.
fertilizer, cancerine, ix, 272.
Crystalline minerals reproduced, ii, 415.
Crystallization of sulphur, *Wetherill*, xl, 328.
Crystallography, *Miller's*, vii, 148.
Crystals, *Krantz's* catalogue of models, noticed, v, 297.

Crystals in blowpipe beads, *Emerson*, vii, 414.
of tartrates of cæsia, etc., vii, 70.
rhombohedral and dimetric, biaxial, viii, 426.
Scacchi on, noticed, xl, 260.
Cumming, H., obituary, xl, 395.
Curare, poisoning effects of, ii, 98.
Cyanid of ethylene, i, 422.
mercury, salts of, iii, 121.
phosphorus, vii, 269.
sulphur, iii, 271.
Czudnowicz, on eusynchite and dechenite, vii, 270.

D

Damour on jadeite, noticed, vi, 426.
Dana, J. D., fossil in Conn. river sandstone, iii, 451.
relations of death to life, iv, 316.
classification of mammals, v, 65.
Jurassic feathered reptiles, v, 130, vi, 318.
detritus origin of coral reefs, v, 207.
Mohawk valley glacier, v, 243.
Palasterina (?) Jamesii, v, 295.
oceanic protozoans akin to sponges, v, 386.
cephalization, and Megasthenes and Microsthenes, vi, 1.
time-boundaries in geological history, vi, 227.
homologies of insects and crustaceans, vi, 3, 159, 233.
parallel relations of classes of Vertebrates, vi, 315.
geol. history of Vertebrates, vi, 320.
cephalization as a principle of classification, vi, 321, 440, vii, 10, 157.
Carboniferous insects, vii, 34.
position of Amphibians among Vertebrates, vii, 184.
slopes of Cotopaxi and Arequipa, viii, 427.
Brushite, ix, 45.
age of iron ore of Mexico, ix, 358.
origin of prairies, xl, 293.
Rhizopods in the Azoic age, xl, 391.
Manual of Geology by, noticed, iv, 282, 444, vii, 302.
Text book of Geology by, noticed, vii, 147.
Mineralogy of, 9th supplement, i, 354.
10th supplement, iv, 202.
Darien Isthmus, ship canal near, iii, 296.
Darlington, W., obituary of, vi, 132.
Darwin, C., on species, *Bree* on, i, 449.
on fertilizing orchids, iv, 138, 420.
dimorphism in Linum, vi, 279.
climbing plants, xl, 273.
Daubenton, biog. notice, *Nicklès*, iii, 112.
Daubeny, eruption of Vesuvius, iv, 439.
Dauber, H., obituary, ii, 150.
Daubrée, Prof. at Jardin des Plantes, iii, 150, 441.
Daussy, P., obituary, *Nicklès*, i, 268.
Davidson, on Nova Scotia brachiopods, vi, 277.
Davies's mounting of microscopic objects, ix, 374.
Davy, on temperature of sexes, viii, 448.
Dawes, W. R., the solar surface, viii, 203.
Dawson, J. W., American Devonian, v, 309.
flora of, v, 311, vi, 41, 279.
Carboniferous flora of N. S., vii, 419.
Laurentian fossils, viii, 231.
the drift, viii, 233.
papers on coal, noticed, i, 290.
on Canadian fossils, noticed, iii, 278.
on precarboniferous flora of N. B., Me., and Canada, noticed, iii, 278.
on footprints of Limulus, noticed, iv, 416.
on air-breathers of coal period, noticed, vi, 430.
Dead sea, expedition to, viii, 148.
Dean, J., on Microscopic Anatomy of Spinal cord, noticed, ii, 302.
Deane, J., on Ichnographs of Conn. river Sandstone, vi, 126.
Death, relations to life, *Dana*, iv, 316.
Debray, on metallic spectra, iii, 414, iv, 407.
Decaisne, on varieties in plants, vi, 432.
De Candolle, A., Prodromus, noticed, iii, 430, iv, 288, viii, 290, ix, 359.
on fruit of oaks, noticed, v, 430.
on species, noticed, v, 431.
memoirs reviewed, v, 1.
reprint of, noticed, vi, 434.
De Candolle, C., on cork, noticed, iv, 287.
Decken, Karl v. d., expedition of, iii, 263.
Declinometer observations, *Bache*, i, 197.
Dehérain on gypsum, *Johnson*, vi, 419.
Delafontaine, on thorium, viii, 417.
on spectra of didymium, etc., xl, 260.
De La Rive, aurora an electric discharge, iii, 294.
on thallium, vi, 113.
De La Rue, eulogy on Bond, ix, 364.
DeLaski, J., glacial action in Me., vi, 274, vii, 335.
Delesse, A., on Metamorphism, noticed, iv, 129.
Carte Agronomique, v, 270.
Extraits de geologie, 1862–3, xl, 272.
Dendrerpeton, vi, 431.
Dennis, W., temperature in temperate zone, v, 44.
theory of tides, vii, 234.
Density of vapors, iii, 413, vi, 408.
ice, iv, 275.
Deppe, F., obituary, *Gray*, iii, 427.
Des Cloizeaux's Mineralogy, noticed, v, 293.
Polarizing Microscope, noticed, xl, 261.
Desert of Sahara, expedition to, vii, 146, 445.
Des Moulins' Vites Bor. Amer., noticed, v, 445.
Desor, E., lake habitations, viii, 437.
Despretz, C. M., obituary, vi, 398.
Deville, H. St. C., on preparation of oxygen, i, 280, 427.
reproduction of crystalline minerals, ii, 415.
hydrofluosilicic acid, iii, 277.
magnesium, vi, 114.
vapor-densities, vi, 408, ix, 346.
permeability of iron, vii, 441.
mortality in Paris, xl, 139.
Devonian, see GEOLOGY.

DeVriese, W. H., obituary, iii, 428.
Dewey, C., caricography, i, 23, ii, 38, v, 57, ix, 69.
Bonapartea juncea, iii, 432, vii, 147.
Dexter, W. P., salts of cyanid of mercury, iii, 121.
biography of H. Rose, viii, 305.
Dextrin, with albumen, vi, 268.
Diacon, on spectra of metals, v, 414.
Dialysis, *Graham* on, iii, 412.
Diamond, *Goeppert* on, xl, 288.
Diatoms, striæ of, i, 12.
on deep sea bottoms, v, 454.
Dichroscope, *Rood*, i, 107.
Didunculus, viii, 294.
Didymium and erbium, spectra of, xl, 260.
Diethylamine, i, 422, iii, 80.
Differential Calculus, *Spare's*, noticed, ix, 236.
Diffraction in microscopic vision, iii, 377.
Dimorphism in plants, iv, 285, 419, vi, 279, ix, 101, 104, 360.
of arsenic, antimony, zinc, i, 191.
in Cynips, *Walsh* on, viii, 130.
Dinosaurian, xl, 392.
Dinotherium, a marsupial, viii, 427.
Dioico-dimorphism, iv, 419, ix, 101.
Diplothyra, genus, *Stimpson*, v, 455.
Distance, instrument for measuring, xl, 136.
estimation of, *Rood*, i, 109.
and color, relative perception of, ii, 184.
Distillation of volatile substances, *Lea*, vii, 377.
Divers, on magnesia salts, v, 115.
Doane, *E. T.*, atoll of Ebon, i, 318.
Doherty's Organic Philosophy, viii, 450.
Dove's optical studies, *Rood*, i, 109.
photometer, *Rood*, iii, 269, vi, 60.
theory of lustre, *Rood*, i, 339.
Dragendorff, on starch, v, 116, 123.
Drift, see GEOLOGY.
Dub's electro-magnetism, noticed, ii, 110.
Du Chaillu's Nat. Hist. collection, ii, 435.
Dufour, on density of ice, iv, 275, 370.
obituary of, xl, 140.
Dujardin on echinoderms, noticed, iv, 151.
Dumas, thallium, v, 273.
Dumèril, obituary, i, 266.
Dunkin, *E.*, error of transit observation, ix, 112.
Dupeyrat's Canal maritime, noticed, v, 269.
Dupont, human remains, xl, 156.
Durand's Vites Bor. Amer., noticed, v, 445.
Duruy's Hist. of modern times, noticed, vi, 407.
Dyeing mordanted cloth, i, 117.

E

Earth, rotation of, *Chase*, vii, 409.
tidal wave of, etc., *Mayer*, viii, 397.
heat of interior, *Mayer*, viii, 404.
see also *Atmosphere*, *Magnetism*.
Earthquakes, theory of, *Perrey*, vii, 1.
in Buffalo, 1865, ix, 372, xl, 366.
in California, in 1865, xl, 366.
in Canada and U. S., 1860, i, 150.
in Kamtschatka, in 1845, xl, 381.
in Ladrones, in 1849, xl, 364.
Earthquake in Mendoza, 1861, ii, 148.
in Mississippi valley, 1865, xl, 273, 362.
in Penang, 1861, ii, 297.
in Sacramento, 1860, ii, 148.
in South America, xl, 365.
in Syracuse, N. Y., 1861, ii, 297.
in Washington, 1861, ii, 453.
Earthwork, *Warner's* theorems, etc., of, iii, 304.
Eaton, *D. C.*, Hooker's Species Filicum, i, 132, v, 138, viii, 429.
Mettenius on ferns, i, 133, 134.
Filices Wrightianæ, etc., noticed, i, 130.
Echinoderms, *A. Agassiz* on, noticed, viii, 130.
fossil, from Cincinnati, *Dana*, v, 295.
Eckfeldt on dissemination of gold, ii, 297.
Eclipse of sun, July, 1860, i, 139, iii, 145.
Egypt, legacy for investigations in, viii, 300.
Elastic forces, *Lamé* on, vi, 409.
Electric currents, action of, *Loomis*, iv, 34.
photographed, *Smyth*, viii, 423.
discharge, *Feddersen*, viii, 421; aurora as, i, 311, iii, 294.
illumination at Boston, vi, 307.
light, *Rood*, i, 110, vii, 207.
properties of pyroxiline paper and gun-cotton, vii, 115, ix, 348.
resistance, new unit of, ii, 105.
spark photographed, *Rood*, iii, 219, viii, 361.
spectra of metals, *Miller* on, ii, 408, vi, 103, viii, 107.
spectrum, *Stokes* on, vi, 108.
see also *thermo-electric*.
Electricity, nature of, *Norton*, ix, 239.
of the blood, *Scoutetten*, viii, 110.
tension in, iii, 116.
Electrolytic precipitation of copper and nickel, a method of analysis, ix, 64.
Electro-magnetism, by *Dub*, noticed, ii, 110.
by *Wiedemann*, noticed, ii, 110.
new experiments, iii, 117.
Electroscope, Gemsbart, *Kobell* on, vi, 111.
Elements, on spectra of, see *Spectra*.
specific heat of, iii, 270.
Eliot, *C. W.*, on impurities of commercial zinc, i, 142, ii, 380.
on lead in silver coins, noticed, i, 430.
Elliott, *D. G.*, prospectus of work on Tetraoninæ, vii, 437.
Emeraldine, ii, 417.
Emerson, *E.*, Brewster's improvements in photographic camera, ii, 227.
improvement in stereoscope, ii, 403.
new collodion; dry photographic process, ii, 426.
tannin process, iv, 134.
perception of relief, iv, 312.
photographic copying, iv, 413.
light on sensitive plate, v, 286.
Jeanrenaud's collodion, v, 419.
Emerson, *G. H.*, crystals in blowpipe beads, vii, 414.
obituary of, ix, 373.
Emmons, E., obituary, vii, 151.
Emsmann's instrument for measuring distances, xl, 136.

Enaliosaurian remains from N. S., *Marsh*, iii, 138, 278, iv, 1.
Enault's La Norvège, i, 155.
Encke, J. F., obituary, xl, 396.
Engelbach on lithium and strontium in meteorite, iv, 407.
Engelmann, G., Parry's plants from the Rocky Mountains, iv, 249, 330.
genus Euphorbia in De Candolle, iv, 288.
Engelmann, H., vegetation of praries, vi, 384.
England, Lias and Oolite in, viii, 285.
Permian of, *Murchison* on, viii, 287.
Rhætic beds of, viii, 284.
Triassic mammals of, viii, 285.
Entomological Soc., Phil., xl, 141, 292, 393.
Eosaurus, vi, 431.
Eozoön Canadense, xl, 344.
Equiseta, geog. distribution of, viii, 126.
in gneiss, xl, 124.
Equivalents, chemical, relations of, *Lea*, iv, 387.
Stas on, i, 419.
Erbium, *Popp* on, viii, 418.
absorption spectrum of, xl, 260.
Erdmann, on separating organic alkaloids, iii, 415.
Espy, J. P., obituary, i, 151.
Essex Institute, proceedings, viii, 152, 451, ix, 116, xl, 144.
Ether, barometric indications of a resisting, *Chase*, viii, 153.
in solar system, *Wilcocks* on, ix, 114.
Ether, formation of, *Rose* on, viii, 319.
replacement of hydrogen in, ix, 95.
Etherification, *Friedel & Crafts*, xl, 40.
Ethyl bases, production ot, *Lea*, ii, 25.
separation of, *Lea*, ii, 26.
with boron, i, 276.
acetate of, with bromine, etc., vi, 42.
nitrate and nitrite of, *Lea*, ii, 177, iii, 86.
oxalate of, *Lea*, ix, 210.
Ethylamin, i, 422; *Lea*, iii, 80.
Ethylene, bromid of, reaction of a sulphid of potassium on, vii, 390.
cyanid of, i, 422.
monobromid of, into acetylene, ii, 414.
oxyd of, i, 277, iv, 130.
Evans, E. W., Ohio meteorite, May, 1860, ii, 30.
action of oil-wells, viii, 159.
Evans, John, sketch of, *Jackson*, ii, 311.
Everett, J. D., on reducing temperature observations, v, 17.
reply to *Loomis*, vi, 173.
Explosive force of powder, *Barnard*, vi, 241.
Eye, field of vision of, viii, 441.
blood corpuscles in, i, 325, 417.
Eye-piece, *Tolles's* orthoscopic, i, 112.

F

Fairbairn, Brit. Assoc. address, ii, 363.
Falconer, on glaciers of the Himalayas, vii, 273.
Falconer, H., obituary, ix, 236, xl, 139.
Faraday, on regelation, i, 414.
on *Siemens'* gas-furnaces, iv, 277, ix, 232.
Faye on electrical effects, iii, 116.
Feddersen, on the electric discharge, viii, 421.
Ferrein on sulphids of alcohol radicals, iv, 133.
Ferrel, W., motion of fluids and solids relative to earth's surface, i, 27.
solar eclipse, July, 1860, i, 139.
cause of Nile inundation, v, 62.
Fertilization of orchids, *Gray*, vi, 292.
Fertilizer, Dehérain on gypsum as, *Johnson*, vi, 419.
Fibres, tropical, *Squier* on, iii, 140.
Figuier's L'année scientifique, i, 155, iv, 128, vi, 407.
Fiji Is., *Seemann* on products of, iv, 366, v, 446.
Fillias' physical geog. of Algeria, v, 269.
Filters, incineration of, i, 118.
Fish, White, of Great Lakes, proposed introduction of into Scotland, viii, 449.
Fission in some annelids, *Minor*, v, 35.
Fitz, H., obituary, vii, 149.
Fitzroy, obituary, xl, 140.
Fizeau on sodium spectrum, v, 414.
Flame, color of, *Merz* on, i, 105.
by phosphorus, vi, 116, 267.
violet, of chlorids, v, 412.
Flamen, Le Verrier du XIX siècle, vi, 408.
Flint glass prisms, for spectral analysis, v, 356.
Florence, Museum of, iii, 151.
Florida reef, *Hunt*, iii, 197.
Fluoborates, analysis of, v, 418.
Fluohydrate of fluorid of potassium, vii, 355.
Forchhammer on saltness of sea, iv, 272.
Fossils, casts of, by *H. A. Ward*, ix, 224.
see further, GEOLOGY
Fouqué, eruption of Etna, xl, 122.
Fractional condensation, *Warren*, ix, 327.
France, Assoc. for advancement of Sci., viii, 148, xl, 288.
human remains in, vi, 123, 402, viii, 145, 277, 297, xl, 135.
Frankland on blue lithium line, iv, 407.
on boron compounds, i, 276, v, 115.
Fraunhofer's lines, see SOLAR SPECTRUM.
Frazer on osmium spectrum, vi, 267.
Freezing of water, *Bigelow*, ii, 205.
Freiberg Mining Acad., centennial of, xl, 138.
Fremy, spontaneous generation, viii, 439.
Fresca, on cylinders of ice formed by pressure through orifice, xl, 134.
Fresenius, phosphate of lithia, iii, 416.
Manual of qualitative analysis, viii, 267.
Frick's Physical Technics, noticed, vii, 149.
Friedel, C., replacement of alcoholic radicals, xl, 34.
etherification, xl, 40.
on compounds of silicon, vi, 115.
Fritzsche, on determination of lime, ix, 344.
Frobisher Bay, *Hall's* collections at, v, 293.
Fuchsine from coal-tar, *Perkin*, ii, 271.
Fulgurites or lightning tubes, i, 302.
Furnace product, diopside, *Brush*, ix, 132.
Furnaces, *Siemens'* regenerative, iv, 277, ix, 232, 344.

Fürnrohr, A. E., obituary, iii, 427.
Fusel oil, *Stein's* test for, i, 114.
Fusible alloy, new, iii, 276.

G

Gabb, W. M., Dr. Moore and Texas survey, i, 460.
joins California survey, iii, 155.
Galapagos Islands, botany of, vii, 436.
Galvanic experiment, iv, 130.
Galvanism, *Wiedemann's*, noticed, ii, 110.
Galvanizing iron, prize to inventor of, viii, 301.
Gangrene counteracted by oxygen, v, 266.
Garapon, on aluminum manufacture, iv, 126.
Gardiner, F., ice in Kennebec R., xl, 20.
Gardner, J., on a meteor, viii, 295.
Garigou, human remains in Pyrenees, viii, 277.
Gas from leaves exposed to light, v, 121.
Gas-furnaces, Siemen's, iv, 277, ix, 232, 344.
Gases, propagation of heat in, ii, 104.
Gasparin, A. E. P. de, obituary, v, 261.
Gautier, A., researches on nebulæ, v, 101, vii, 198.
Gay, J., obituary, vii, 292.
Geinitz's Dyas, noticed, iii, 425, iv, 280, 415, vii, 432.
on new Permian plants, noticed, vii, 432.
Gelatine, reactions of, *Lea*, xl, 81.
Gemsbart electroscope, *Kobell* on, vi, 111.
Genth, F. A., Haidinger on meteorites, ii, 135, 440, iv, 152, vi, 150.
mineralogical contributions, iii, 190.
Newstead meteorite, vi, 149.
Geographical distribution of Equiseta, viii, 126.
notices, *Gilman*, i, 51, iii, 259, iv, 87, 356, v, 223, vii, 75.
Geological Museum, Rochester, N. Y., iii, 449.
Soc. of France, iii, 439.
Geological Works, noticed:—
Arkansas, Geol. Report of, i, 124, 431, 455, ii, 233.
Barrande, Défense des Colonies, xl, 392.
Bigsby, Cambrian and Huronian formations, vi, 277.
Bronn, Index Palæontologicus, iv, 304.
California Geol. Survey, Reports, i, 124, iii, 155, iv, 157, vi, 118, vii, 82, 427, viii, 256, 298, ix, 10, 99, xl, 141.
Canada Geol. Survey, i, 122, v, 134, vi, 428, ix, 224.
Canadian Naturalist and Geologist, i, 310, viii, 449.
Chapman, Minerals and Geol. of Canada, vii, 432.
Conrad, Catalogue of Miocene shells, v, 428.
Dana, Manual of Geol., iv, 282, 444, vii, 302.
Text-book of Geol., vii, 147.
Davidson, Nova Scotia brachiopods, vi, 277.
Dawson, papers on coal, i, 290.
Canadian fossil and climate, iii, 278.
flora of N. B., Me., and Canada, iii, 278.
Geological works, noticed:—
Dawson, footprints of Limulus, iv, 416.
air-breathers of coal-period, vi, 430.
Deane, ichnographs of Conn. R. sandstone, vi, 126.
Delesse, Metamorphism of Rocks, iv, 129.
Extraits de Geologie, 1862-3, xl, 272.
Geinitz, Dyas, iii, 425, iv, 280, 415, vii, 432.
two new Permian plants, vii, 432.
Haast, formation of Canterbury Plains, xl, 143.
Hall, Palæontology, i, 125, 292, ii, 430, iii, 127, 280, vii, 137.
Crinoidea of Upper Helderberg and Hamilton groups, iv, 282.
new Niagara fossils, vi, 127, ix, 353.
crinoids of Waverly sandstone, vii, 140.
Fauna of the Potsdam, vii, 140.
Laurentian of E. N. Y., ix, 96.
Graptolites of Quebec group, ix, 224.
Hayden, Geol., etc., of Upper Missouri, iii, 452, iv, 100, xl, 271.
Hilgard, Geol. of Mississippi, ii, 303.
Hind, Geol. of N. B., xl, 142.
Hitchcock, Supplement to Ichnology of New England, xl, 392.
Holmes, fossils of S. C., iii, 298.
Ill., Geol. Report of, i, 124, 125, ix, 358.
Jones, Fossil Estheriæ, vi, 277, vii, 140.
Jukes, Manual of Geol., iv, 282.
Kentucky Geol. Survey, i, 294, 460, ii, 118, 233, 281.
Leidy, U. S. Cretaceous Reptiles, xl, 391.
Lesley, Mont-Alto lignite, etc., xl, 119.
Lyell, Antiquity of man, vi, 125, vii, 432.
McChesney, fossils from Western States, ii, 122, xl, 116.
Maine, Board of Agriculture Report, iii, 452.
Geol. Report, vi, 274.
Marcou, rocks of Vt. and Canada, iii, 281.
Geol. of Nebraska, ix, 157.
Meek, Miocene fossils of N. A., ix, 358.
Meek & Hayden, Nebraska fossils, i, 126, iv, 137.
paleontology of Upper Missouri, xl, 271.
Meek & Worthen, fossils from Ill., etc., i, 125.
Michigan, Geol. survey of, ii, 303.
Nevada, Geol. survey of, xl, 273.
N. Brunswick, Geol. Reports of, ix, 356, xl, 142.
N. J., Geol. report of, ix, 359.
N. Y., Geol. survey of, i, 125, see *J. Hall*.
Regents of Univ. of, Report, i, 292, ii, 430, iii, 279, iv, 418.
Owen, reconnoissance of Ind., v, 154.
Pander, Devonian fishes, vi, 127.
Roemer, Silurian fauna of W. Tenn., i, 127, 205.
Russia, Geol. map of, xl, 123.
Salter, fossil crustacea, vi, 277.
Shumard, Cretaceous of Texas, i, 127, iii, 300.
Sullivan, geology of Santander, viii, 119.
Tennessee, Geol. survey of, i, 294.

GEOLOGICAL WORKS, noticed:—
Texas, Geol. survey, i, 124, 294, 460.
Unger, tour in Greece, etc., vii, 79.
Vt., geol. report, iii, 416, iv, 135, v, 430.
Ward, Megatherium Cuvieri, viii, 295.
White and *Whitfield*, Mississippi valley, rocks and new fossils, iii, 422.
Whitney, Geol. Rep. on California, see California (preceding page).
Wisc., Geol. Survey, ii, 454, iii, 420, 453.
GEOLOGY—
Albert coal of N. B., *Hitchcock*, ix, 267.
American geology, *Hunt*, i, 392.
Annelid, fossil, *Marsh*, viii, 415.
Anthracosaurus Russelli, vi, 277.
Anthrakerpeton, xl, 124.
Appalachian region of Va., *Lesley*, iv, 413.
Archæopteryx, v, 129, vi, 127, xl, 271.
Azoic age of N. J. Highlands, ix, 221.
of Mexico iron ore, ix, 358.
rocks of Michigan, ix, 290.
of N. Y., ix, 96.
Barrel-quartz, *Silliman*, viii, 104.
Beatriceæ, *Hyatt*, ix, 261.
Calomoporæ in gravel near Ann Arbor, *Rominger*, iv, 389.
Carboniferous and Permian, species common to, *Kirkby*, v, 133.
crustaceans of, vi, 277.
formation of N. A., *Lesquereux*, ii, 15, 193, iii, 206, v, 375.
Cape Breton, vi, 179.
flora of N. Scotia, *Dawson*, vii, 419.
insects of Illinois, vii, 34, xl, 268.
Saurian vertebræ of N. Scotia, iii, 138, 278, iv, 1.
a seam of coal in, *Andrews*, viii, 194.
Labyrinthodont, new, vi, 277.
rocks and fossils west of Mississippi, etc., *Meek*, ix, 157.
Centronella genus, etc., *Billings*, vi, 236.
Cephalopods, new, and rocks of Mich., iii, 352.
Conn. River sandstone, footmarks of, vi, 46, 126.
fossil larve in, iii, 451.
Copper range of Lake Superior, iii, 320, iv, 112.
Cretaceous in California, viii, 261.
of W. Tennessee, vii, 360.
of Texas, *Meek*, ii, 278.
west of Mississippi, ix, 157.
transition to Tertiary, viii, 287.
Crinoid, genus Erisocrinus, *Meek*, ix, 173, 350.
Cryptonella, Centronella, etc., *Hall*, v, 396, vi, 11,
Crystalline limestone, produced by heat, vi, 278.
Denudation, effects of, *Jukes*, iv, 429.
Devonian, American, *Dawson*, v, 309.
flora, *Dawson*, v, 311, vi, 41, 279.
Catskill group, age of, *Jewett*, iv, 418.
and Chemung groups, identification of, v, 61.
crustaceans of, vi, 277.
insects, N. Brunswick, ix, 357.
microscopic organisms of hornstone in, iii, 385.
GEOLOGY—
Devonian nature of Elgin sandstone, viii, 288.
Dinotherium a Marsupial, viii, 427.
Diptera of the Amber-fauna, vii, 305.
Drift, *Dawson*, viii, 233.
in Brazil, *Agassiz*, xl, 389.
in Michigan, *Winchell*, xl, 331.
Murchison on, ix, 358.
Period, *Pictet*, i, 345.
Enaliosaurian remains from N. Scotia, *Marsh*, iii, 138, 278, iv, 1.
Fishes, American fossil, *Newberry*, iv, 73.
Fossils, Arctic, *Hall's*, v, 293, xl, 31.
fruits of Brandon, Vt., ii, 355.
Galt limestone, iii, 46, ix, 353.
Glacial, see GLACIAL.
Goniatite limestone at Rockford, Ind., *Meek* and *Worthen*, ii, 167, 288.
Human remains, see MAN.
Ichthyosaurian skin, ix, 358.
Jurassic, feathered vertebrates of, v, 129, vi, 318.
Laurentian fossils in Canada, i, 393, vi, 222, vii, 272, viii, 231, 431, xl, 344, 391.
Leclare limestone, iii, 46, ix, 353.
Leptocœlia concava, v, 84,
Lias, transition of, to Oolite, *Ramsay*, viii, 285.
Lingula-flags, fossils in, viii, 122.
Lingula polita, *Whitfield*, iv, 136.
Mastodon in California, iv, 135, viii, 264.
in Michigan, *Winchell*, viii, 223.
Megatherium, vi, 300, viii, 295.
Oneida conglomerate, *Jewett*, viii, 121.
Palasterina (?) Jamesii, *Dana*, v. 295.
Paleozoic climate, *Hunt*, vi, 396.
Pebbles, elongated, i, 375, 440.
Permian of England, *Murchison*, viii, 287.
Petroleum, see PETROLEUM.
Plants, fossil in Nebraska, *Heer*, i, 435.
Equisetum in gneiss, xl, 124.
Pleurodyctium problematicum, v, 82.
Potsdam sandstone, tracks in, i, 17.
crustacean, new, v, 295.
fossils of, *Winchell*, vii, 226.
of N. J. zinc mines, ii, 208.
Trilobites of, in Wisconsin, i, 294, ii, 149.
in Vermont ii, 232, 454, iii, 100, 106, 370, 421.
Primordial fauna, i, 210.
fossils in N. Brunswick, ix, 35.
in Texas, ii, 213.
sandstone of Rocky Mts. iii, 68.
Pteriidæ, *Meek*, vii, 212.
Quebec group and copper-bearing rocks of L. Superior, *Logan*, iii, 320.
at Point Lévi, with catalogue of fossils, *Logan*, vi, 366.
age of, *Logan*, iii, 105.
fauna of, *Logan*, i, 216.
Red sandstone of Vt., age of, *Billings*, ii, 232, iii, 100, 370, 421.
C. H. Hitchcock, ii, 454.
Rhætic beds of England, viii, 284.
Rocks, see ROCKS.
Rocky Mts., period of elevation of, near sources of Missouri, iii, 305.

GEOLOGY—
Saliferous rocks and salt springs of Michigan, *Winchell*, iv, 307.
Silurian beds of W. Tenn., *Safford*, i, 205.
fossils, new, iii, 136, 279, iv, 136.
rocks of N. Scotia, viii, 289.
Glauconite in, *Hunt*, iii, 277.
Solar system, unity of geol. phenomena in, iii, 36.
Taconic system, *Barrande*, *Logan* and *Hall* on, i, 210.
Hunt, ii, 427, iii, 135.
Marcou on, iii, 281.
Tertiary in California, *Whitney*, viii, 262.
Eocene lignite, U. States, *Conrad*, xl, 265.
Time-boundaries in geol. hist., *Dana*, vi, 227.
Trees, buried branches of, in Illinois, ix, 95.
Triassic mammalian remains in England, viii, 284, 285.
rocks of Sierra Nevada, viii, 260.
of Penn., bone-bed in, i, 301, ii, 41, 454.
Saurian remains of Keuper, iii, 138.
Vertebrates, distribution of, in geological time, vi, 320.
on a supposed lower jaw, *Stimpson*, vi, 299.
relations of classes of, *Dana*, vi, 315.
in Waukesha limestone, position of, iv, 136.
volcanic phenomena, see VOLCANO.
Geometrical drawing, *Warren's* Manual, iii, 303.
Geometry, descriptive, *Warren's* problems of, i, 448.
German Association, viii, 448.
Germination affected by ozone, etc., *Lea*, vii, 373.
chemistry of, v, 290.
Germs, diffusion of, see *Spontaneous*.
Gervais, on sepulture in age of stone, xl, 135.
Gesner, on coal oils, noticed, i, 147, xl, 291.
Gibbons, H., rising of streams in Cal., viii, 187.
Gibbs, J. W., obituary of, i, 463.
Gibbs, W., on platinum metals, i, 63, iv, 341, vii, 57.
physical and chemical abstracts, i, 112, 276, 414, 419, ii, 104, 110, 414, iii, 270, 412, iv, 130, 404, v, 110, 411, vi, 113, 408, 413, vii, 116, 267, 408, viii, 106, 113, 265, 415, ix, 91, 215, 344, xl, 113, 257.
atomic weights, i, 246.
contributions to chemistry, vii, 346, ix, 58.
appointed Prof. in Harvard Coll., vi, 309.
Gibraltar, human remains in caves, viii, 282.
Gill, T., Tryon's Contributions to Conchology, v, 297.
Holbrook's Ichthyology of S. C., vii, 89.
Squali of California, noticed, v, 299.
Synopsis of Squali, noticed, v, 299.
Gilliss, J. M., comet II, 1861, ii, 254, 265, 305.
Gilliss, J. M., earthquake at Penang Island, ii, 297; at Washington, ii, 453.
appointed to U. S. Nav. observatory, ii, 148.
observations, 1861, noticed, v, 146.
obituary, ix, 235.
Gilman, D. C., geographical notices, i, 51, iii, 259, iv, 87, 356, v, 223, vii, 75.
Gilmore, on limes, cements and mortars, noticed, vi, 447.
Glacial action in California, viii, 258.
in Himalayas, *Falconer*, vii, 273.
in Maine, *De Laski*, v, 249, vi, 274, vii, 335.
in Mohawk valley, *Dana*, v, 243.
in Nova Scotia, *Silliman*, vii, 417.
origin of certain lakes, v, 324.
Glaciers, action of, *Ruskin*, ix, 98.
Gladstone on violet flame of chlorids, v, 412.
Glaisher, luminous meteors, viii, 443.
Glass coral of Japan, *Stimpson*, v, 458.
Glucina, carbonate of, *Parkman*, iv, 321.
Glucinum and its compounds, *Joy*, vi, 83.
Glycerine employed in surgery, ii, 98.
Goeppert on diamond, noticed, xl, 288.
Goodyear's translation on assaying, noticed, xl, 289.
Gorilla, *Sanford*, iii, 48.
Owen on, ii, 435, iv, 440.
casts of parts of, viii, 292.
height of, *Gray*, ii, 437.
Göthe's Metamorphosis of plants, viii, 126.
Gottschalk, spectrum of chlorochromic acid, viii, 109.
Gould, B. A., obituary of Masterman, vi, 448.
eulogy on Hubbard, noticed, ix, 115.
Graeger, R., value of soap, i, 114.
Graham, on chemical analysis, iii, 412.
Grandeau on rubidium in plants, iv, 407.
Grateloup, obituary, iii, 149.
Gratiolet, on the brain in man and monkeys, iv, 188, 441.
obituary, xl, 140.
Gravity, *Walling*, xl, 254.
and magnetism, relations of, *Chase*, ix, 312, xl, 83, 166.
Gray, A., Botanical notices and reviews, i, 128, 431, 443, ii, 124, 289, iii, 139, 427, 430, iv, 138, 282, 419, v, 134, 430, vi, 128, 279, 432, vii, 278, 433, viii, 122, 289, 428, ix, 101, 224, 358, xl, 125, 273.
Plants from Rocky Mts., iii, 237, 404, iv, 249, 330, v, 137.
fertilization, etc., of orchids, iv, 138, 420, vi, 292.
DeCandolle's memoirs, v, 1, vi, 434.
on the gas evolved by leaves, v, 121.
Herbarium of, at Cambridge, viii, 128, ix, 224.
Manual of Botany by, noticed, v, 448.
Gray, J. E., height of gorilla, ii, 437.
Great Britain, ordnance survey of, iv, 358.
mining statistics, 1864, xl, 390.
Greece, *Unger's* tour in, vii, 79.
Green Mts., change of level in, viii, 243.
Greene, B. D., obituary, v, 449.
Greg, R. P., periodic meteors, vii, 445.
catalogue by, noticed, iii, 291.

Gressly, A., obituary, xl, 140.
Grisebach's Flora of W. India Ids., i, 129, iv, 288, ix, 108.
Plantæ Wrightianæ, noticed, i, 129.
Gruner et *Lan*, Métallurgie du Fer en Angleterre, vi, 273.
Guano and artificial pearls, iii, 120.
Guano islands of the Pacific, iv, 224.
products of Sombrero, vi, 423, xl, 367.
Gulf Stream Cloud Bank, *Hunt*, v, 389.
Gulick, O. H., on Kilauea, vii, 416.
Gum-arabic, with albumen, vi, 268.
Gun-casting at Pittsburgh, vii, 296.
Gun-cotton, electric properties of, vii, 115, ix, 348.
Gunnery, height determined by, viii, 299.
Gunpowder, combustion of under different pressures, i, 429.
force of, *Burnard*, vi, 241.
Günsberg, on dextrin with albumen, vi, 268.
Guyot, A., Appalachian system, i, 157.
physical maps, by, noticed, vii, 80.
Gypsum as a fertilizer, *Johnson* on Dehérain, vi, 419.
Gyroscope, experiment with, *Rood*, ix, 259.

H

Haast, on Formation of Canterbury plains, noticed, xl, 143.
Hackley, C. W., obituary, i, 303.
Haeusser, E., obituary, i, 461.
Hager's Geol. of Vt., noticed, iii, 416, iv, 135, v, 430.
Hague, J. D., Guano Islands of the Pacific, iv, 224.
Haidinger, W., on meteorites, ii, 135, 440, iv, 152, vi, 150, viii, 424, xl, 134.
Haldeman's Tour of a Chess Knight, noticed, xl, 291.
Hale's flora of Wisconsin, noticed, i, 130.
Hall, A., elements of comet I, 1861, ii, 259.
Hall, C. F., Arctic expedition, i, 54, iv, 356.
collections at Frobisher Bay, v, 293.
Hall, E., botanical collections in Rocky Mts., v, 137, vi, 129.
Hall, J., primordial fauna and Point Levi fossils, i, 220.
Potsdam sandstone and Hudson river rocks in Vermont, iii, 106.
rejoinder to criticisms on his Palæontology, iii, 127.
on new Potsdam crustacean, v, 295.
Cryptonella, Centronella, etc., v, 396, vi, 11.
Palæontology by, noticed, i, 292, ii, 430, iii, 127, 280, vii, 137.
geol. survey of Wisconsin by, ii, 454, iii, 420, 453.
Crinoidea of Upper Helderberg and Hamilton groups, by, iv, 282.
new Niagara fossils, noticed, vi, 127, ix, 353.
Crinoidea of Waverly sandstone by, notice of, vii, 140.
Fauna of Potsdam sandstone by, notice of, vii, 140.
Laurentian in E. New York, noticed, ix, 96.
Canadian graptolites, noticed, ix, 224.
Hamilton, W. R., obituary, xl, 396.
Harcourt, on peroxyds of potassium and sodium, iii, 273.
Harkness, on Rosshire sandstone, viii, 288.
Harley, on animalcules in the blood, viii, 293.
Harms, on hydrate of soda, vii, 117.
Harris, insects injurious to vegetation, noticed, iii, 434.
Harrison, B. F., solution of ice, v, 49.
Hartmann, Die Fortschritte des metallurgischen Huttengewerbes, &c., vi, 273.
Hartt, on primordial fossils of N. B., ix, 356.
fossil insects discovered by, ix, 357.
Harvey's Thesaurus Capensis, i, 128, vii, 286, xl, 126.
Phycologia Australica, vii, 286.
Flora Capensis, i, 128, v, 444, xl, 125.
Haughton, on reflexion of polarized light, vi, 109.
Hayden, F. V., Geol. of headwaters of Missouri and Yellow Stone, i, 229, iii, 452.
Rocky Mts., primordial sandstone of, iii, 68.
period of elevation of, iii, 305.
Mandan Indians and their language, iv, 57.
U. S. surveys, iv, 98.
Ethnography, etc., of Indians of Missouri valley, noticed, iv, 446.
see further, *Meek* and *Hayden*.
Hayes, A. A., copper, lead and tin in alcoholic spirits, ii, 114.
Hayes, Dr., Arctic voyage, i, 51, ii, 451, iii, 263, iv, 95.
Hayes, S. D., lead-salt corresponding to cobalt-yellow, i, 226.
Hayti, Indian Race of, *Van Heuvel*, v, 171.
Heat, absorption and radiation of, ii, 106.
Australian, v, 49.
in gases, ii, 104.
radiant, passage of through rock-salt, vii, 267.
from sun, *Mayer*, viii, 399.
of interior of earth, *Mayer*, viii, 404.
of earth, cooling of, viii, 407.
sources of, *Mayer*, vi, 262.
sun's, measure of, *Mayer*, vi, 264.
Tyndall on, noticed, vi, 310.
vibrations, *Croll*, viii, 267.
Heath in N. America, ii, 290, iii, 22, viii, 122, 428, ix, 228.
Heer, O., reply to Newberry on age of Nebraska leaves, i, 435.
Height of Lake Geneva, viii, 300.
mountains in Cal., *Whitney*, vi, 123, vii, 81, viii, 258, 298, ix, 10.
in Rocky Mts., viii, 148.
determined by gunnery, viii, 299.
Heis, on meteor, Dec. 1861, iv, 431.
on August meteors, 1863, vi, 444.
on meteor, March, 1863, noticed, vi, 445.
on radiants of shooting stars, viii, 296.
Heldt, on oxygen and hydrogen, v, 112.
Hemeristia occidentalis, vii, 35, xl, 268.
Henckel von Donnersmarck, obituary, iii, 427.
Henneberg, on urine of oxen, v, 291.

Hennessy, on Mars, viii, 435.
Henrici, on function of roots, vii, 136.
Henry, J., distribution of specimens in nat. hist. by Smithsonian Inst., iii, 441.
Henslow, J. S. obituary, *Gray*, iii, 427.
Hepburn's meteorological record, Japan, iv, 96.
Herbivores, classification of, *Dana*, vii, 157.
Herrick, E. C., shooting stars, i, 136, ii, 294, iii, 147, 148, 290, 291.
Auroral record, ii, 81.
seventeen-year Cicada in 1860, New Haven Co., Conn., iii, 433.
obituary, iv, 159.
Herschel, A. S., on August meteors, 1863, vi, 444.
Herschel, J., on the sun, viii, 143.
spectrum of shooting stars, ix, 232.
Hervey's, Plants of New Bedford, Mass., noticed, i, 130.
Hessenberg's Min. Notizen, viii, 427.
Heterogeny, see *Spontaneous Generation.*
Heuglin's search for Dr. Vogel, i, 59.
Hildreth, S. P., Meteorology, etc , of Marietta, 1860, i, 252.
1861, iii, 216; 1862, v, 181.
obituary, vi, 312.
Hilgard's Geol., etc., of Miss., noticed, ii, 303.
Himalayas, glaciers of, *Falconer*, vii, 273.
Hind, H. Y., Geol. of N. Brunswick, noticed, xl, 142.
Hind, J. R., disappearance of nebula, iii, 436.
Hinrichs, G., density, rotation, and relative age of the planets, vii, 36.
dark lines in spectra of elements, viii, 31.
magnetic period depending on sun's rotation, viii, 420.
planetology, ix, 46, 134, 276.
inclination of planets to invariable plane, xl, 131.
on researches of, *Kirkwood*, viii, 9.
Hippuric acid, *Maier*, ix, 208.
in animal organisms, v, 291.
Hirn, L'équivalent mécanique de la chaleur, i, 155.
Hitchcock, C., red sandstone of Vt., ii, 454.
antimony in Canada, vii, 405.
Albert coal, ix, 267.
Maine Geol. Report, noticed, vi, 274.
Hitchcock, E., conversion of conglomerates into gneiss, talcose schists, etc., i, 372.
fossil footmarks, vi, 46.
Vt. Geol. Report, by, iii, 416, iv, 135, v, 430.
reminiscences of Amherst Coll., by, notice of, vii, 148.
Ichnology of New England, Supplement, noticed, xl, 392.
obituary of, vii, 302.
Hochstetter, Prof., death of, i, 461.
Hofmann, polyatomic bases of nitrogen, phosphorus and arsenic series, i, 420.
separation of mono-, bi-, and triethylamin, i, 422.
on anilin dyes, v, 417, vi, 413.
Holbrook's Ichthyology of S. C., noticed, vii, 89.
Holmes's fossils of S. C., iii, 298.
Holyoke water-fall, *Loomis*, vi. 354.
Homologous series, mathematical theory of, ii, 413.
Hooker, J., on Welwitschia, noticed, vi, 434, xl, 273.
Hooker, J. D., Arctic Plants, noticed, iv, 144.
cedars of Lebanon, etc., noticed, iv, 148.
N. Zealand Flora, ix, 359.
and *Bentham*, Genera Plantarum, v, 134.
Hooker, W. J., Species Filicum, i, 132, v, 138, viii, 429.
second century of Ferns, i, 132.
obituary, xl, 288.
Horizontal magnetic force, *Bache*, iv, 261, 373.
influence of the moon on, *Bache*, iv, 381.
Hough, G. W., comet, II, 1862, iv, 294.
machine for cataloguing stars, viii, 166.
How, H., natro-boro-calcite in Nova Scotia gypsum, ii, 9.
on gyrolite, ii, 13.
Hubbard, J. S., elements of comet II, 1861, ii, 310.
obituary of, vi, 313.
eulogy on, noticed, ix, 115.
Hübner, on cyanid of phosphorus, vii, 269.
Hudson Bay, explorations of, v, 237.
Huggins, W., spectra of fixed stars and nebulæ, xl, 73, 133.
Human, see *Man.*
Humphreys & Abbot's Report on Miss. River, iii, 181, v, 223, vi, 16, 197.
Hunt, E. B., Florida Reef, v, 197.
physical notes at Key West, v, 388.
obituary, vi, 450.
Hunt, T. S., geol. survey of Canada, i, 122.
theory of types in chemistry, i, 256, 460.
chrome garnet, i, 295, 360.
American geology, i, 392.
chloritoid from Canada, i, 358, 442.
ozone, nitrous acid, nitrogen, ii, 109, v, 271.
origin of some magnesian and aluminous rocks, ii, 286.
Taconic system, ii, 427, iii, 135.
glauconite in lower Silurian, iii, 277.
bitumens and pyroschists, v, 157.
claims theory of nitrification, v, 271.
metamorphic rocks, vi, 214.
on Maclarlane on manufacture of soda, etc., vi, 269.
climate in the Paleozoic, vi, 396.
jade, vi, 426.
lithology, vii, 248, viii, 91, 174.
Laurentian Rhizopods of Canada, Eozoön, vii, 431, xl, 344.
chemistry of natural waters, ix, 176, xl, 43, 193.
Hunter, on absorption of gases by charcoal, vi, 412.
Hurricanes at Key West, *Hunt*, v, 393.
Huxley, T. H., on brain in man and monkeys, iv, 188, 441.

Huxley, T. H., Man's place in Nature, noticed, v, 451.
on new Carboniferous Labyrinthodont, vi, 277.
Origin of species, noticed, vi, 312.
Comparative Anatomy, by, viii, 294.
Hyatt, A., on the Beatriceæ, ix, 261.
Hybrid plants, return to parental forms, ix, 107.
Hydrastine, *Mahla* on, iii, 43, vi, 57.
Hydrate of baryta, preparation of, ii, 118.
magnesia, crystalline, ii, 94.
soda, *Harms* on, vii, 117.
Hydraulics of Humphreys and Abbot's Report, *Barnard*, vi, 197.
Hydrocarbon, C_4H_2, in coal gas, i, 118, v, 115.
Hydrocarbons, new modes of forming, iv, 131.
process of fractional condensation for separating, *Warren*, ix, 327.
volatile, *Warren*, xl, 89, 216.
Hydrofluosilicic acid, iii, 277.
Hydrogen, arseniuret of, vii, 117.
compound of iron and, iii, 272.
nascent, sulphuric acid reduced by, ii, 412.
peroxyd of, v, 114.
phosphuretted, viii, 313.
properties of, v, 112.
replacement of, in ether, ix, 95.
sulphid of, reaction with, xl, 338.
Hylerpeton, vi, 431.
Hylonomus, vi, 430.
Hyperchloric acid, *Roscoe* on, iv, 131.
Hypermanganic acid and compounds of sesquioxyd of manganese, optical distinction of, vii, 408.
Hyponitric acid, *Müller* on, iv, 132.
spectrum of, i, 415.
Hyposulphite of soda, vii, 346.

I

Ice-cylinders, by pressure through orifices, xl, 134.
density of, *Dufour* on, iv, 275, 370.
manufacture of, *Carré* on, vi, 405.
effect of, in boiling water, iv, 130.
solution of, on inland waters, *Harrison*, v, 49.
in Kennebec R., *Gardiner*, xl, 20.
Ichnographs from Conn. River sandstone, *Deane* on, noticed, vi, 126.
Ichthyosaurus, skin of, ix, 358.
Illinois geol. survey, report on, i, 124, 125, ix, 358.
buried stems and branches in, ix, 95.
Nat. Hist. Soc., Transactions of, vi, 312.
India, configurations of, *Schlagintweit*, iv, 101, 96.
Karakorum range, measurement of peak in, iv, 365.
Indian race of Hayti, *Van Heuvel*, v, 171.
tribes of Missouri Valley, *Hayden's* Ethnography of, iv, 446.
Indiana Geological Reconnoissance, by *Owen*, noticed, v, 154.
Indisine, ii, 268.
Indium, *Reich*, vi, 415, vii, 269, viii, 113.
Indium, wave length of blue line of, xl, 259.
Infusoria in organic solutions, iv, 79.
Infusorial earth, analysis of, viii, 277.
Ink, prize for, xl, 139.
plant, *Jameson*, vii, 287.
Insects, fossil, from Carboniferous of Illinois, vii, 34, xl, 268.
of N. Brunswick, ix, 357.
mounted for microscope, vi, 157.
ravages of, a cause of their destruction, viii, 299.
see also ZOOLOGY.
International College, *Nicklès*, iv, 125.
Exhibition, Science of, *Marsh*, v, 256.
Ceramic Arts of, *Salvétat*, v, 268.
Interpenetration, chemical theory of, *C. S. Pierre*, v, 78.
Interpolation in physics and chemistry, *Bartlett*, iv, 27.
Inundations, causes of, i, 275.
of Nile, *Ferrel*, v, 62.
Iodine, violet colors from, viii, 148.
Iridium, ores of, resolved, i, 64.
Iron, ammonia-picrate of, i, 86.
Bessemer's process for, v, 421.
carbon in, iii, 273.
carbonate of sesquioxyd of, iv, 321.
chromic, vii, 358.
combination of hydrogen and, iii, 272.
containing copper in puddling, i, 115.
desulphuration of, in puddling, v, 119.
manganese in, v, 120.
meteoric, see *Meteoric*.
nitrate of, *Ordway*, xl, 316.
oxyd of, from lime, etc., i, 113.
permeability of, vii, 441.
sensitive reaction for, viii, 265.
separation from other bases, by acetate of sodium, ix, 60.
separation of sesquioxyd and protoxyd of, viii, 116.
silicon in, v, 118.
Tissier's process for, i, 120.
titanium in, vii, 126.
tungsten in, vii, 118.
at London Exhibition, v, 258.
Iron ore in Arizona, *Blake*, xl, 388.
in Mexico, ix, 309, 358.
in Michigan, *Kimball*, ix, 290.
Isthmus of Darien, ship-canal near, iii, 296.
of Suez, cutting of, and cutting of other Isthmuses, viii, 300, ix, 85.
Italian exhibition, 1861, iii, 152.
Soc. Nat. Sci., xl, 395.
Italy, mineral productions of, iii, 153.
geol. map of, iii, 151.
Ives, Dr. Eli, obituary of, ii, 455.
Ives, J. C., Colorado river, report, iii, 387.
Ivory, vegetable, vii, 445.

J

Jackson, C. T., sketch of John Evans, ii, 311.
Tellurbismuth from Ga., v, 99.
Dakota meteorite, vi, 259.
emery in Chester, Mass., ix, 87.
James, E., obituary, iii, 428.
Jameson, on ink-plant, vii, 287.
Jan, G., Prodromo degli Ofidi, v, 455.
Japan, geol. exploration, ii, 148, iii, 155.
glass coral of, v, 458.

Japan, meteorological record in, iv, 96.
Jeanrenaud, formula for collodion, v, 419.
Jenkin, thermo-electric currents in circuits of one metal, iv, 435.
Jet-d'eau from air heated under glass, viii, 445.
Jewett, E., age of Catskill group, iv, 418.
Oneida conglomerate, viii, 121.
Jobard, obituary of, iii, 108.
Johnson, S. W., Chancel's method of estimating phosphoric acid, i, 283.
soil analyses of geol. surveys of Ky. and Ark., ii, 233.
cæsium, v, 94, vi, 413.
chemical abstracts, v, 115, 123, 283, 290, 418, 423, vi, 116, 268, 271, 419, vii, 122, 136.
silica in the higher plants, v, 124.
alkalimetry, v, 279.
composition of soils, v, 292.
nitrogen question, v, 426.
thallium, vii, 121.
Leibig's Chemistry, vii, 135.
Meissner on oxygen, ozone, and antozone, vii, 325, viii, 18.
Johnston, J., electric properties of pyroxyline paper and gun-cotton, vii, 115, ix, 348.
Jomard, E. F., obituary of, v, 261.
Jones, T. R., on fossil Estheriæ, noticed, vi, 277, vii, 140.
Jouffroy's Cours de Droit Naturel, i, 155.
Joy, C. A., glucinum and its compounds, vi, 83.
on a meteorite from Chili, vii, 243.
the Chimenti pictures, viii, 199.
Jukes, J. B., variations of earth's surface, iv, 439.
Manual of Geology, noticed, iv, 282.
Julien, A. A., Sombrero guano, vi, 424.
new guano minerals, xl, 367.
siliceous spicules from Sombrero, xl, 379.

K

Kalicine, xl, 124.
Kamtschatka, volcanoes of, xl, 272.
Kansas, geology of, *Meek*, ix, 157.
Karsten, H., Floræ Columbiæ Specimina, ii, 289.
Kaskaskia river basin, v, 232.
Kennebec R., ice in, *Gardiner*, xl, 20.
Kennedy channel, fossils from, xl, 31.
Kentucky geol. survey, i, 294, 460, ii, 118, 233, 281.
Kerl, Handbuch der metallurgischen Hüttenkunde, ii, 150, vi, 272, vii, 135.
on Assaying, translation noticed, xl, 289.
Keroselene, *Storer*, ii, 276.
Kersten, on detection of nitric acid, vi, 268.
Kesselmeyer, Ueber den Ursprung der Meteorsteine, iii, 292.
Key West physical notes, *Hunt*, v, 388.
Khanikoff's Persian researches, iv, 362.
Kieser, D. G. v., obituary, v, 449.
Kimball, J. P., iron ores of Michigan, ix, 290.
Kindberg, Monographia Lepigonorum, vii, 435.
King, C., explorations in Sierra Nevada, ix, 10.
King, W., loss of light by glass shades, i, 283.
Kinic acid, reduction to benzoic, v, 291.
Kirchhoff, analysis of solar atmosphere, i, 103.
cæsium and rubidium, ii, 409.
solar spectrum, iv, 404, vi, 266.
Kirkby, J. W., species common to Carboniferous and Permian, v, 133.
Kirkwood, D., Nov. meteors, 1860, i, 139.
orbits of binary stars, vii, 233.
harmonies of solar system, viii, 1.
planetary distances, ix, 66.
on analogies of, *Trowbridge*, ix, 25.
Klotzsch, J. F., obituary, i, 461.
Knoblauch, passage of radiant heat through rock-salt, vii, 267.
Kobell, Gemsbart electroscope, vi, 111.
Geschichte d. Mineralogie, viii, 426.
Koenig, sulphate of copper as a preservative of wood, ii, 274.
Kolbe, reduction of sulphuric acid by nascent hydrogen, ii, 412.
monocarbon and dicarbon acids, viii, 265.
Kolk, energy of chemical action, ix, 92.
Krantz's catalogue of crystal models, v, 297.
mineral catalogue, ix, 373.
Kustel processes of gold and silver extraction, noticed, vii, 134.
Kuhlmann, tar as preservative, vi, 406.
Kupffer, obituary of, xl, 140.
Kurile Is., volcanoes of, xl, 272.

L

Ladevi-Roche, Unité des Races, v, 270.
Lake Geneva, height of, viii, 300.
Superior, copper range of, i, 359, iii, 320, iv, 112, vii, 431.
Lake-habitations in Austria, viii, 439.
in Bavaria, viii, 437.
Carinthian, ix, 372.
in Switzerland, iv, 161, xl, 135.
Lakes, glacial origin of, v, 324.
Norway, marine crustaceans in, viii, 293.
LaLande prize, v, 301.
Lamé, work of elastic forces, vi, 409.
Lamy, thallium, iv, 275, v, 273.
on thallic alcohols, ix, 220.
Landolt, indices of refraction of fluid homologous compounds, v, 415.
Lang on sulphate of thallium, vii, 117.
Langley, J. W., detection of picrotoxine, iv, 109.
Lartet, man accompanied by the reindeer in France, viii, 145.
Larve budding, *Wagner* on, ix, 110, 362.
Latrobe, B. H., sand hills of Cape Henry, xl, 261.
Laurent's Theorie des Séries, v, 270.
Laurentian, see GEOLOGY.
Lautermann, reduction of kinic to benzoic acid, etc., in animals, v, 291.
Lavocat, on cephalic vertebræ, viii, 293.
Lavoisier, unpublished memoir by, ii, 98.
publication of works of, v, 262.

Lawrence Sci. School, contributions from, vii, 346, ix, 58.
gifts to, ix, 235, 374.
water-fall, *Loomis*, vi, 360.
Lea, I., on genus Unio, notice of, iv, 451, v, 143, vi, 139, vii, 436.
Lea, M. C., picric acid a test for potash, i, 75.
combinations of ammonia, picric acid, and metallic bases, i, 78.
picramic acid, i, 188, ii, 210.
estimation of nitrogen, proposed process and acidimetric process, i, 189.
ethyl bases, production of, ii, 25.
separation of, ii, 26.
nitrate and nitrite of ethyl, ii, 177, iii, 86.
urea from ferrocyanid of potassium, ii, 179.
history of picric acid, ii, 180.
colored derivations of napthaline, ii, 211, iii, 229, viii, 360.
compound of ammonia, mercury and nitric acid, ii, 374.
reactions of ethylamine and diethylamine, iii, 80.
methyl bases and nitrate of methyl, iii, 227.
methlyamine, iii, 366.
triethylamine, iv, 66.
aspirator and blower, iv, 245.
improved retorts, iv, 302.
relations of chem. equivalents, iv, 387.
Storer's Dictionary of Solubilities, vii, 301.
effect of ozone, etc., on germination, vii, 373.
distillation of volatile substances, vii, 377.
coloration of faded photographic prints, vii, 438.
platinum metals, viii, 81, 248.
aldehyde, viii, 114.
ozone on insensitive iodid and bromid of silver, ix, 74.
oxalate of ethyl, ix, 210.
reactions of gelatine, xl, 81.
invisible photographic image, xl, 109.
Lead, concentration of silver in, v, 119.
oxyd of, *Wichmann* on, i, 116.
in aqueduct pipes, corrosion of, ii, 115.
in basaltic tufa, i, 363.
in alcoholic spirits, ii, 114.
in silver coins, i, 430.
Lead-salt, corresponding to cobalt-yellow, i, 226.
Leavenworth, M. C., obituary, v, 306, 451.
LeConte, J., Silver Spring of Florida, i, 1.
LeConte, Major J., obituary, i, 303, 462.
Lecoq's Vie des Fleurs, iv, 128.
Lehmann, J. G. C., obituary, i, 461.
Leidy's Human Anatomy, ii, 149.
U. S. Cretaceous Reptiles, xl, 391.
Lejeun's expedition, iii, 263.
Leonhard, K. C. v., obituary, iii, 453.
Leprosy, treatment of, v, 266.
Leptocœlia concava, *Rominger*, v, 84.
Les Mondes, noticed, v, 465.
Lesley, J. P., Lesquereux's table of comparative sections, ii, 281.
Appalachian region of southern Va., iv, 413.
Lesley, J. P., Coal-measures of Cape Breton, vi, 179.
age of N. J. Highlands, ix, 221.
on petroleum in Va., noticed, vii, 149.
on Mont Alto lignite, noticed, xl, 119.
Lesley, J., Jr., report of coal fields of Kentucky, ii, 118, 281.
Lesquereux, L., coal formations of North America, ii, 15, 193, iii, 206, v, 375.
fossil fruits of Brandon, Vt., ii, 355.
origin and formation of prairies, ix, 317, xl, 23.
botanical report of Arkansas, noticed, i, 431.
fossil flora and coal in Kentucky, noticed, ii, 118.
report on coal of Indiana, v, 155.
Level, change of, in Green Mts., *Scott*, viii, 243.
Le Verrier, U.-J., planetary system and tables of Mars, ii, 222.
Lewis, J., on barometer, xl, 233.
Lewis, J. C., rain following discharge of ordnance, ii, 296.
Lewitsky, on sulphocyanid of ammonia, vi, 417.
Lieben, replacement of hydrogen in ether by chlorine, ethyl and oxethyl, ix, 95.
Liebig's Chemistry, etc., noticed, vii, 135.
Liebreich on protagon, xl, 113.
Liefert, on redevelopers, vi, 418.
Light, action of, on sensitive plate, v, 286.
combination of different tints of, ix, 254.
combustion by invisible rays of, ix, 347.
dispersion by rotation of plane of polarization in quartz, ix, 347.
production of proto-organisms by, ix, 81.
field of, in eyes, viii, 441.
interference in prismatic and diffraction spectra, ix, 218.
loss of, by glass shades, i, 283.
polarized, instrument to illustrate, *Snell*, ii, 376.
reflection of, vi, 109.
through colored media, *Newcomb*, i, 418.
velocity of, *Lovering*, vi, 161.
wave lengths of rays of, viii, 415.
determined by interference bands, viii, 416.
of blue indium line, xl, 259.
of Fraunhofer's lines, ix, 215.
see further, LUSTRE, SPECTRA.
Lime, carbonate of, ii, 112.
in a meteorite, xl, 213.
determination of, ix, 344.
estimation of, v, 116.
phenate of, into rosalate of, iv, 403.
separated from alumina, etc., i, 112.
solution of sulphate of, v, 283.
Linnæan Society, notice of Journal of, i, 443, ii, 127, 289, iii, 143, iv, 285, ix, 360.
Linnæus's Systema Naturæ, reprint of, xl, 395.
Linnemann, cyanid of sulphur, iii, 271.
Linsay, on redevelopers, vi, 418.
Linum, dimorphism in, *Darwin*, vi, 279.
Lippincott, H. S., climate near water, ix, 372.

Liquids, atomic constitution of, vi, 309.
List, pig iron containing copper, i, 115.
Lithium, as phosphate of lithia, iii, 416.
in hot springs, viii, 447, ix, 13.
in meteorites, iii, 273, iv, 407.
spectrum of, iv. 407.
Lithology, *Hunt*, vii, 248, viii, 91, 174.
Littrow's spectroscope, v, 413.
Livingstone's explorations, iii, 262, iv, 89, vii, 87.
Læw, Diptera of Amber fauna, vii, 305.
Lœwenthal, on dyeing mordanted cloth, i, 117.
Logan, T. M., meteorol. observations, Sacramento, 1860, ii, 147; for 1861, iii, 293.
Logan, W. E., track in Potsdam, i, 17.
Quebec rocks, fauna of, i, 216.
age of, iii, 105.
and copper-bearing rocks of L. Superior, iii, 320.
at Point Lévi, with catalogue of fossils, vi, 366.
Laurentian fossils, vii, 272.
geol. of eastern N. Y., ix, 96.
Reports of Canada Geol. Survey, noticed, i, 122, v, 134, vi, 428, ix, 224.
London Exhibition, 1862; Report of Class I, noticed, vi, 273.
Geol. Soc., Anniv. address, noticed, vi, 278.
Longitude, Bureau of, reconstructed, iv, 125.
Loomis, E., auroras of Aug. and Sept., 1859, and auroras generally, ii, 71, 318.
coincidence of Aurora Borealis and Australis, ii, 81.
astronomical notices, ii, 132, 291, 438, iii, 144, 288, 435, iv, 292, 430.
electric currents and auroral beams, iv, 34.
Everett's method of reducing temperature observations, v, 31.
vibrating water-falls, vi, 352.
Astronomy by, noticed, xl, 140.
Louisiana, salt mine in, vi, 308.
Lovering, J., velocity of light and sun's distance, vi, 161.
Lubbock, J., lake-habitations of Switzerland, iv, 161.
Lubbock, J. W., obituary, xl, 288.
Lucernaria, *Clark*, v, 346.
Lucernariæ, Prodromus of, *Clark*, v, 459.
Lunar systems of planets, *Hinrichs*, ix, 276.
Lustre, *Brewster's* theory, i, 342.
Dove's theory, *Rood*, i, 109, 339.
production of, in monocular vision, i, 343.
without use of lustrous surface or stereoscope, *Rood*, ix, 260.
Luther's rediscovery of Calypso, iii, 435.
elements of Melete, iv, 430.
Luynes, Duc de, expedition of, viii, 148.
Lyall's Botany of Brit. America, vii, 287.
Lyceum Nat. Hist., N. Y., Annals, viii, 152.
Lyell, C., Address before Brit. Assoc., on min. waters and metamorphism, ix, 13.
Antiquity of Man, by, noticed, vi, 125, vii, 432.
title of baronet to, viii, 301.
Lyman, C. S., cannonading heard 125 miles, iii, 154.
Lyman, J., trigonometer of, iv, 157.
Lyman, T., on Ophiuridæ and Astrophytidæ, noticed, xl, 283.

M

McChesney's Fossils from Western States, ii, 122, xl, 116.
McClintock's Arctic soundings, i, 57.
McCurdy, H. I., Chancel's method of estimating phosphoric acid, i, 281.
Macfarlane, manufacture of Na, Cl, etc., vi, 269.
Mackay, J. T., obituary, v, 449.
McMillan, S. B., rain-fall in Ohio, ii, 296.
Magellanic premium to P. E. Chase, ix, 114.
Magenta from coal-tar, *Perkin*, ii, 271.
Magnesia, crystalline hydrate of, ii, 94.
salts, with carbonate of ammonia, v, 115.
separation from iron, etc., i, 112.
Magnesium, vi, 114.
light, vii, 440, xl, 287.
Magnetic declination influenced by gravity, ix, 312, xl, 83.
moon, i, 98.
deflection during auroras, ii, 327.
force at St. Helena, disturbances in, ix, 316.
horizontal component of, iv, 261, 373.
moon's influence on, iv, 381.
inclination, *Chase*, xl, 166.
observations of mission to India and High Asia, 1854 to 1858, ii, 300.
period depending on sun's rotation, *Hinrichs*, viii, 420.
solar diurnal variation and annual inequality, i, 197.
survey of Pennsylvania, etc., *Bache*, v, 359.
Magnetism and gravity, relations of, ix, 312.
terrestrial, a mode of motion, *Chase*, ix, 117.
dependent on atmospheric currents, viii, 373.
periodic changes in, viii, 269, 420.
Magnus, heat in gases, ii, 104.
constitution of the sun, viii, 106.
on condensation, viii, 109, 110.
Mahla, F., polarizing powers of American oil of turpentine, ii, 107.
berberin in Hydrastis Canadensis, iii, 43.
hydrastine, vi, 57.
Maier, J., binoxyd of lead and sulphuric acid on hippuric acid, ix, 208.
adulteration with oil of turpentine, ix, 273.
Maine Board of Agriculture, Report, iii, 452.
Geol. Report, vi, 274.
glacial action in, *DeLaski*, vi, 274, vii, 335.
Morse's Pulmonifera of, viii, 303.
Maize, paper from, viii, 299.
Mammals, fossil, see GEOLOGY.
Man, Antiquity of, *Lyell's*, vi, 125, vii, 432.
flint implements of, etc., in England, viii, 280.

Man, stone implements of, in India, viii, 443.
factory of flint implements of, viii, 443.
fossil, at Abbeville, vi, 123, 402, viii, 297.
remains of, in bone-cave, Borneo, viii, 148.
Holy Land, viii, 148.
in caverns of Bruniquel and Gibraltar, viii, 281, 282.
in cavern in Pyrenees, viii, 277.
of age of stone, in France, xl, 135.
skulls of, in Belgian bone-cave, ix, 223, xl, 136.
with mastodon, in Cal., viii, 264.
reindeer, viii, 145.
see further, *Lake-habitations.*
Mandan Indians and their language, *Hayden*, iv, 57.
Manganese, ammonia picrate of, i, 85.
amount of, in iron, v, 120.
separation of, from cobalt and nickel, *Gibbs*, ix, 58.
from alumina, magnesia and lime, i, 112.
sesquioxyd of, optically distinct from hypermanganic acid, vii, 408.
Manna lichen, viii, 442.
Manross, N. S., coal and iron in Mexico, ix, 309.
obituary, iv, 452.
collections of, for sale, vi, 158.
Maramec river basin, v, 232.
Marcou, rocks of Vermont and Canada, iii, 281.
geol. of Nebraska, *Meek*, ix, 157.
Marcoy, Scènes et Paysages dans les Andes, iv, 129.
Marcus, new thermo-electric battery, xl, 257.
Marignac, analysis of borates, v, 418.
on tungstates, vi, 113.
Marmier's En Amèrique et en Europe, i, 155.
Mars, tables, etc., of, *Le Verrier*, ii, 222.
Hennessy on, viii, 435.
Marsh, B. V., aurora an electric discharge, i, 311.
De La Rive on, iii, 294.
meteors of Aug. 1861, ii, 448.
of Dec. 1862, v, 302.
luminosity of, vi, 92.
features of comets, iii, 89.
Marsh, O. C., gold of Nova Scotia, ii, 395.
saurian vertebræ from Nova Scotia, iii, 138, 278, iv, 1.
mineral localities in New Brunswick, etc., v, 210.
science of International Ex'n, v, 256.
fossil Annelid, viii, 415.
Martens, M., obituary, vii, 288.
Martin, human remains in Pyrenees, viii, 277.
Martius's Flora Brasiliensis, ii, 289, iv, 288, vi, 130, vii, 283, ix, 360.
Maskelyne, N. S., aerolitics and Butsura meteorites, vi, 64.
Masterman, S., meteors, Jan. 1863, v, 149.
brilliancy of Mira Ceti, v, 150.
Masterman, S., zodiacal light, vi, 143.
variable stars, vi, 144.
death of, vi, 314, 448.
Mastodon, see GEOLOGY.
Mathematical theory of homologous series, ii, 413.
Mattiesen, new unit of electrical resistance, ii, 105.
Maumené, oxygenated beverages, iii, 116.
Maury's Sailing Directions, etc., Report of National Academy on, vii, 447.
Mauve, *Perkin*, ii, 268, vii, 413.
Mayer and *Pierson*, La Photographie, v, 269.
Mayer, J. R., celestial dynamics, vi, 261, vii, 187, viii, 239, 397.
Measures, metric system of, v, 302, viii, 446.
Mechanical energy of chemical action, *Kolk*, ix, 92.
Medical Chemistry, *Bowman's*, vii, 302.
Science, *Wells's* Summary of, ii, 303.
Statistics of U. S. Army, i, 60.
Medusæ, *A. Agassiz* on tentacles of, noticed, v, 300.
Meek, F. B., goniatite limestone of Rockford, Ind., ii, 167, 288.
reply to Marcou on rocks of Texas, ii, 278.
Actæonidæ, v, 84.
Pteriidæ, vii, 212.
review of Marcou on geology of Kansas, &c., ix, 157.
new genus, Erisocrinus, ix, 173, 350.
fossils from Kennedy Channel, xl, 31.
check-list of Miocene invertebrate fossils, notice of, ix, 358.
Meek & Hayden's Nebraska fossils, noticed, i, 126, iv, 137.
palæontology of Upper Missouri, xl, 271.
Meek & Worthen's description of new species and fossils from Ill., i, 125.
Megasthenes and Microsthenes, *Dana*, vi, 8, 338.
Meissner, ozone, etc., vii, 325, viii, 18.
Melanians, *Stimpson*, viii, 41.
Mercury, cyanid of, salts of, iii, 121.
nitric acid and ammonia, compound of, ii, 374.
Merrick, J. M., Jr., nitroglycerine, vi, 212.
Merz, colors of flames, i, 105.
solar spectrum, v, 413.
Metal, new, alkaline, *Bunsen* on, i, 105.
fusible, *Wood*, iii, 276.
in platinum, *Chandler*, iii, 351.
Metallic lustre, *Dove's* theory of, i, 109, 339.
painting, *Oudry* on, v, 264.
spectra, colored rays of, iv, 407.
Metallurgy, *Kerl's*, ii, 150, vi, 272, vii, 135.
Percy's, v, 118, viii, 149.
in England, by *Gruner & Lan*, vi, 273.
Metals, new mode of reducing, viii, 267.
solutions of, phosphorus on, iii, 328.
Metamorphic rocks, chem. and min. relations of, *Hunt*, vi, 214.
of Michigan, *Kimball*, ix, 290.
Metamorphism of conglomerates with gneiss, talcose schists, etc., *Hitchcock*, i, 372.

Metamorphism, local, *Hunt*, viii, 183.
through mineral waters, *Lyell*, ix, 22; *Hunt*, ix, 176, xl, 43, 193.
Meteoric fireballs, see SHOOTING STAR.
iron containing nitrogen, iv, 213.
of Rutherford, (so-called), iv, 298.
see under METEORITES.
rings, *Twining*, iii, 244.
stone, from Richland, S. C., iv, 298.
Waterloo, N. Y., iv, 298.
Meteorites, *Buchner* on, noticed, vi, 445.
Greg's catalogue of, iii, 291.
Kesselmeyer's, iii, 292.
Shepard's, i, 456.
Haidinger's researches on, ii, 135, 440, iv, 152, vi, 150, viii, 424, xl, 134.
rules for observations of, ii, 443.
lithium and strontium in, iii, 273, iv, 407.
of Arkansas, *Smith*, ix, 372, xl, 213.
Atacama, vii, 243, viii, 386.
Australia, ii, 441, 442, iv, 155.
Bengal, *Haidinger*, xl, 134.
Bishopville, iv, 297, viii, 225, 425.
Butsura, *Maskelyne*, vi, 64.
Calcutta, ii, 141.
Copiapo, viii, 424.
Dakota, *Jackson*, vi, 259.
Guernsey Co., O., *Smith*, i, 87.
Hindostan, i, 302, ii, 135, 141, ii, 401.
Hraschina, ii, 135.
Lincoln Co., Tenn., *Smith*, i, 264.
Nebraska, ii, 146.
Newstead, *Genth*, vi, 149.
North Amer., *Rammelsberg*, iv, 297.
Oldham Co., Ky., *Smith*, i, 151, 265.
Orgueil, ix, 230.
Robertson Co., Tenn., i, 151, 266.
St. Louis, iv, 443.
Sarepta, vi, 150, viii, 424.
Tucson, vi, 152, 301.
Tula, ii, 144.
Wayne Co., O., *Smith*, viii, 385.
Meteoroids, *Newton*, ix, 193.
Meteorological bureau in Prussia, xl, 288.
record at Kanagawa, Japan, iv, 96.
Marietta, *Hildreth*, 1860, i, 252; 1861, iii, 216; 1862, v, 181.
Sacramento, 1860, ii, 147; 1861, iii, 293.
Toronto, ix, 115.
U. S. Nav. Observatory, by *Gilliss*, noticed, v, 146.
Meteorology, association in France for advancement of, ix, 83.
Meteors, see SHOOTING STARS, METEORITES.
Methyl bases and nitrate of methyl, *Lea*, iii, 227.
Methylamine, *Lea*, iii, 366.
Metric system, v, 302, viii, 446.
Mettenius, on Ferns, noticed, i, 133.
Filices Horti Lipsiensis, i, 134.
Monnier, De l'Orfévrerie Electro-Chimique, iv, 129.
Mexico, coal and iron in, ix, 309, xl, 124.
note on, *Dana*, ix, 358.
tin in, *Chandler*, ix, 349.
Meyer, H. von, Jurassic feathered vertebrates, v, 129.
Palæontographia, viii, 428.
Meyn, peat-sandstone, v, 123.
Miamia Bronsoni, vii, 34, xl, 268.
Michaelson, on bragite, vii, 272.
on radiolite, etc., viii, 274.
Michaux's Plants, etc., *Brunet* on, vii, 286.
Michigan, drift materials in, *Winchell*, xl, 331.
geological survey, ii, 303.
iron ores, *Kimball*, ix, 290.
mastodon in, viii, 223.
petroleum in, *Winchell*, ix, 350.
rocks and cephalopods of, iii, 252.
saliferous rocks of, iv, 307.
Microscope, growing slide for, *Smith*, xl, 241.
illuminator for, xl, 238.
limit of vision and resolving power of, i, 12.
mounting insects for, *Vickers*, vi, 157.
objects, *Davies's* work on, ix, 374.
polarizing, *Des Cloiseaux* on, noticed, xl, 261.
Tolles's binocular, viii, 111, ix, 212.
Wenham's binocular, i, 110, viii, 111.
Microscopic anatomy of spinal cord, *Dean* on, ii, 302.
forms, investigation of, *Rood*, iii, 65.
organisms in hornstone, *White*, iii, 385.
photography, *Rood*, ii, 186.
vision, diffraction in, *White*, iii, 377.
Milan, civic museum, iii, 151, 441.
Milk, *Müller* on sweet fermentation of, i, 428.
Miller, F., meteors, 1860, i, 138.
Miller, W. A., photographic spectra, ii, 408, vi, 103, viii, 107.
spectrum of thallium, viii, 107.
analysis of hot spring, viii, 447.
spectra of fixed stars, xl, 73.
chemistry by, noticed, vii, 414.
Miller, W. H., crystallography by, noticed, vii, 148.
Millon, on reduction of silver waste, vi, 417.
Mimetic analogy in Lepidoptera, *Bates*, reviewed, vi, 285.
Mineral catalogue, *Krantz's*, ix, 373.
comptoir, *Seemann's*, ix, 372.
localities in N. Brunswick, N. Scotia, and Newfoundland, *Marsh*, v, 210.
oil, see *Petroleum*.
products of Great Britain and Ireland, v, 288.
of Italy, iii, 153.
waters, see *Waters*.
Mineralogical museum, Rochester, N. Y., iii, 449.
notices, notice of *Hessenberg's*, viii, 427.
Mineralogy, Dana's, Ninth Supplement to, *Brush*, i, 354; Tenth, iv, 202.
Des Cloizeaux's, v, 293.
von Kobell's Hist. of, viii, 426.
MINERALS.—
Acmite, i, 357; Adamsite, iv, 216; Ægirine, vii, 407; Akanthite, i, 357; Albertite, ix, 267, 356; Albite, i, 357; Algodonite, iii, 192, iv, 203, 223; Alisonite, iv, 204; Allanite from Swampscot, Mass., iv, 204; from Franklin, N. J., iv, 204;

MINERALS, notices of:—
Aluminite, i, 357; Alunite, iv, 204; Amblygonite, from Maine, iv, 243; Ammiolite, i, 357; Anatase, artificial, viii, 424; Anglesite, iv, 204; Antimonial arsenic, iii, 190, iv, 205; Antimony, dimorphism of, i, 191, vii, 405; in N. Brunswick, v, 150; Antozonite, iv, 211; Apatite, i, 358; Aphrosiderite, iv, 205; Apophyllite, iv, 205; Arœoxene, vii, 270; Arsenical-antimony, iii, 190, iv, 205; Arsenids of copper, iii, 191, v, 296; Arsenolite, iii, 190, iv, 205; Astrophyllite, vii, 272; Automolite, iii, 196, iv, 220.
Bamlite, i, 367; Batrachite, i, 364; Beryl, i, 358; Bihariite, iv, 205; Bismuth, iv, 205; Boracite, iv, 205; Boronatrocalcite, ii, 9, iv, 206; Bournonite, iv, 206; Bragite, vii, 272; Brookite, artificial, viii, 424; Brucite, i, 358, ii, 94, iv, 206; Brushite, *Moore*, ix, 43; *Dana*, ix, 45; *Julien*, xl, 369; Bucholzite, i, 367.
Calamine, iv, 207; Calcite, xl, 367; Caucrinite, iv, 207; Cassiterite in Mexico, ix, 349; Cervantite, iv, 207; Chabazite, iv, 207; Childrenite, vi, 122, 257, 258; Chladnite, iv, 297, viii, 225, 425; Chlorite of Monroe, N. Y., iv, 208; of Webster, N. C., iv, 208; group, *Pearse*, vii, 221; Chloritoid, i, 358, 442; Chrysocolla, iv, 208; Chrysolite, i, 358, iv, 208; and minerals from its alteration, iii, 199; Chrysotile, i, 367; Clinochlore, i, 359, iv, 208; Columbite, *Rose*, v, 426, vii, 117; Copiapite, iv, 209; Copper Glance, i, 362, iv, 209; Corundophilite, Chester, Mass., xl, 112; Cronstedite, i, 359; Cryolite, v, 285; Cryptomorphite, iv, 205.
Darwinite, i, 370; Datholite, iv, 209; Davyne, i, 365; Dechenite, iv, 210, vii, 270; Deleminzite, iv, 210; Diallogite, i, 360, 371; Dianite, i, 360, iv, 210; Diaspore, Chester, xl, 112, 123; Diopside, viii, 117; furnace product, *Brush*, ix, 132; Diorite, *Hunt*, viii, 179; Dipyre, Canaan, Ct., xl, 113; Dolerite, *Hunt*, viii, 174; Domeykite, iii, 193, iv, 210; Dufrenite, iv, 210.
Emery, Chester, Mass., ix, 87, xl, 112, 123; Engelhardite, iv, 224; Epidote, i, 360, iii, 197, iv, 211; Esmarkite, so-called, viii, 277; Eudialyte, vii, 407; Eusynchite, vii, 270.
Faujasite, i, 360; Feldspar, i, 360, iv, 211; Fergusonite, i, 360; Fibrolite, i, 367; Fichtelite, iv, 211; Fluor from Wölsendorf, iv, 211; Forcherite, viii, 277; Fournetite, i, 368; Freieslebenite, iv, 211.
Galena, octahedral, v, 126; so-called pseudomorphs after pyromorphite, iv, 211; Gamsigradite, iv, 213; Garnet, i, 295, 360, iv, 212, viii, 277, xl, 112; Gersdorffite, i, 361; Gibbsite, i, 355, 361; Gieseckite, i, 361; Glauberite, iv, 212, Glauconite in Silurian, *Hunt*, iii, 277; Glossecollite, iv, 212; Gmelinite, i, 361; Gold, i, 361; dissemination of, ii, 297; *Kuestel* on extracting, vii, 134; pseudomorph after aikinite, iii, 160, iv, 212; of Australia, iv, 212; of British Columbia, viii, 146; Gold of California, *Silliman*, xl, 1; of Nova Scotia, ii, 395, iv, 212, viii, 104; Göthite, vii, 271; Graphite, i, 361; Grastite, *Pearse*, vii, 224; Gyrolite, *How*, ii, 13, iv, 212.
Halloysite, iv, 212; Harmotome, i, 361; Harrisite, i, 362, iv, 209; Haüyne, i, 362, iv, 213; Hedyphane, viii, 275; Heulandite, i, 362; Hjelmite, i, 362; Himbeerspath, i, 360; Hornblende, iv, 213, viii, 116; Hörnesite, i, 363; Hydromagnesite, i, 363.
Ilmenite, iv, 213; Iolite, iv, 213; Irite, iv, 213.
Jade and jadeite, vi, 426.
Kämmererite, iv, 214, vii, 221; Kaolin, i, 363; Keramohalite, i, 363; Kerolite, iii, 293, iv, 214; Kieserite, iv, 214; Kischtimite, v, 427; Kischtim-Parisit, v, 427; Kobellite, viii, 116; Kokscharovite, viii, 275; Könleinite, iv, 214.
Labradorite, i, 363, iv, 214; Lanthanocerite, iv, 214; Lapis-Lazuli, i, 363, iv, 215; Laumontite altered, iv, 215; Lazulite, iv, 215; Leopardite, a true porphyry, iii, 197; Lepidolite, iv, 215; from Maine, iv, 215, 369; Leucite, i, 363, iv, 215; Libethenite, i, 363; Liebenerite, i, 363; Lievrite, iv, 215; Linarite, iv, 215; Loewigite, iv, 215.
Margarite, so-called, from Pfitschthale, iv, 216; Margarodite from Derby, Vt., iv, 216; from Ross-Hill, Ireland, iv, 216; Martite, iv, 216; Mascagnine, i, 364; Melaconite, i, 364; Melanhydrite, i, 364; Mellite, i, 364; Metabrushite, xl, 371; Mica, iv, 216, viii, 116; asterism in, v, 259; Microcline, i, 364; Millerite, iii, 195, iv, 217; Monazite, iii, 204, iv, 217; Monrolite, i, 367; Monticellite, i, 364.
Nacrite, i, 365; Nagyagite, iv, 217; Natrolite, from Bergen Hill, N. J., i, 365; Nepheline, i, 365.
Opal, iv, 217; Ornithite, xl, 377; Orthite from Mass., *Balch*, iii, 348; Orthite-like mineral, viii, 275; Orthoclase, iv, 217; Orthopyre, *Hunt*, viii, 93; Ottrelite, i, 358, 442.
Paracolumbite, *Pisani*, vii, 359; Paradoxite, viii, 426; Paralogite, i, 367; Peetolite, i, 365; Phillipsite, i, 365; Pholerite, i, 365, iv, 217; Phonolite, *Hunt*, viii, 101; Phosphochaleite, i, 365; Phyllite, i, 358, 442; Pinite, iv, 218; Pinitoid, i, 366; Pisanite, i, 366; Planerite, viii, 276; Platinum, new metal in, iii, 351; with chrome-iron, iv, 218; Pollux, viii, 115; Polybasite, iv, 218; Polyerase, i, 366; Prehnite, iv, 218; Proustite, i, 366, iii, 195, iv, 218; Psilomelane, iv, 218; Pyrargyrite, i, 366; Pyrope, iii, 196, iv, 218; Pyrophyllite, from N. C., iv, 218; Pyrosmalite, iv, 218; Pyroxene, i, 366, viii, 118.
Quartz, barrel, of Nova Scotia, viii, 104; Euba, viii, 426; Quicksilver, in Cal., *Silliman*, viii, 190.
Radiolite, viii, 274; Rastolyte, iv, 208; Rhodonite, iv, 219; Roesslerite, iv, 220; Rutile, i, 366; artificial, viii, 424.

MINERALS, notices of:—
Samarskite, viii, 276; Sarcolite, i, 366; Scapolite, i, 366, viii, 277; Scheelite, iv, 220; Schefferite, viii, 274; Senarmontite, vii, 407; Serpentine, i, 367, iii, 201, 203, iv, 220; Sexangulite, iv, 212; Siegenite, viii, 117; Sienna, American, xl, 112; Sillimanite, i, 367; Silver, a pseudomorph of, after Stephanite, i, 367; Skolopsite, viii, 118; Sodalite, i, 367; Sombrerite, vi, 423; Spartaite, ix, 174; Splautrite, iv, 224; Spinel, iv, 220; Stassfurthite, iv, 205; Staurotide, iii, 198, iv, 220, viii, 116; Stibiconite, iv, 207; Stiblite, vii, 407; Stilpnomelane, i, 368; Syenite, *Hunt*, viii, 94; Syhedrite, xl, 110; Szaibelyite, iv, 221, vii, 271.
Tagilite, i, 368; Talc, indurated, from Bristol, Ct., i, 368; from Webster, N. C., iii, 200, iv, 222; Tellurbismuth from Georgia, v, 99; Tephroite, *Brush*, vii, 66; Tetradymite, i, 368; Tetrahedrite, i, 368, iv, 222; Texalite, ii, 94, iv, 206; Tin in alcoholic spirits, ii, 114; in Mexico, ix, 349; Tinstone, vii, 353; Topaz, iv, 222; Tourmaline, viii, 116; Trachyte, *Hunt*, viii, 95; Tremolite, viii, 117; Triphyline, cæsium in, iii, 274; from Norwich, Mass., iv, 402; Triplite, i, 369; Tritomite, iv, 222; Tungsten, vii, 407.
Uranite, iv, 222; Uranophane, i, 369.
Vanadinite, vii, 270; Vermiculite (?), *Brush*, i, 369; Vivianite, viii, 117.
Wagite, iv, 207; Whitneyite, i, 370, iii, 191, iv, 223; Wöhlerite, i, 371; Wolfram, i, 371, iv, 223; Wollastonite, iv, 223; Wurtzite, iv, 224.
Xenolite, i, 367.
Yttrotantalite, i, 371, iv, 224.
Zeugite, xl, 373; Zincite, i, 371, iv, 224; Zircon, iv, 224; Zoisite, triclinic, i, 371; Zwieselite, variety of triplite, i, 371.
Minerals, *Alger's* cabinet of, viii, 301, ix, 224.
Mining and Smelting Magazine, v, 289.
statistics of Grt. Brit., 1864, xl, 390.
Minor, *W. C.*, Wagner on brain of man and monkey, iv, 197.
new species of Tomopteris, iv, 429.
fission in some annelids, v, 35.
larve-budding, ix, 110, 362.
Miocene shells of Atlantic slope, catalogue of, *Conrad*, noticed, v, 425.
Miquel's Journal de Botanique Neerlandaise, iii, 140.
Annales Musci Bot., vii, 181.
Mississippi, Hilgard's Geol., etc., of, ii, 303.
river, Humphreys and Abbot's report, iii, 181, v, 223, vi, 16, 197.
tabular view of, v, 234.
valley, earthquakes in, xl, 273, 362.
Missouri, see *Upper Missouri*.
Mitchel, O. M., obituary of, iv, 451.
Mitchell, *M.*, on double stars, vi, 38.
Mitchill & Horehouse, on respiration of Chelonia, reviewed, vi, 141.
Mitscherlich, *A.*, on spectral analysis, iv, 403.
Mitscherlich, *A.*, on separation of sesquioxyd and protoxyd of iron, viii, 116.
Mitscherlich, E., obituary of, vi, 451.
Mitten's Brit. American Bryology, viii, 291.
Moffat, luminosity of phosphorus, iv, 437.
Mohawk valley glacier, *Dana*, v, 243.
Mohl, on dimorphous flowers, ix, 104.
Molecular physics, *Norton*, viii, 61, 207, ix, 237, xl, 61.
Molybdenum, *Braun's* test for, vi, 268.
Monobromid of ethylene, into acetylene, ii, 414.
Monte Rosa, ascent of, *Twining*, iii, 442.
Moon, declination of needle influenced by, i, 98.
horizontal magnetic force influenced by, iv, 381.
age of surface of, *Nasmyth*, ix, 112.
light of, compared with Venus, xl, 287.
Moonrise on water, *Hunt*, v, 395.
Moore, *G. E.*, wax of Myrica cerifera, iii, 313.
brushite, ix, 43.
Moquin-tandon, H. B. A., obituary, vi, 401, vii, 288.
Mordanted cloth, dyeing of, i, 117.
Morid's process for recovering writing, viii, 299.
Morse's Pulmonifera of Maine, viii, 303.
classification of Mollusca, noticed, xl, 393.
Motion of fluids and solids relative to the earth's surface, *Ferrel*, i, 27.
Mount Cenis, coal in Alps of, viii, 122.
tunnel of, ii, 101, iii, 439, xl, 138.
Hope nurseries, iii, 432, vii, 147.
Mountain system of the Appalachians, *Guyot*, i, 157.
Mousson's spectroscope, ii, 105.
Mulder, determination of carbonic acid in organic analysis, iii, 415.
Müller, *A.*, sweet fermentation of milk, i, 428.
composition of soils, v, 292.
on monocarbon and dicarbon acids, viii, 265.
Müller, *C.*, continuation of Walpers' Ann. Botan. System., iii, 140, xl, 126.
Müller, *F.*, Flora Australiensis, vi, 290, ix, 110.
Plants of Victoria, notice of, vii, 286.
Müller, *H.*, hyponitric acid, iv, 132.
preparation of chlorinated organic bodies, iv, 133.
Müller, *J.*, wave lengths of spectral lines, vii, 116, xl, 259.
Müller, *M.*, Science of Language, iii, 300.
Murchison, *R. I.*, progress of geology, iii, 1.
Permian of England, viii, 287.
on the drift, noticed, ix, 358.
medal to, viii, 145.
Muscovy duck, viii, 294.
Museum of Bologna, Florence, Milan, iii, 151.
at Rochester, Ward's, iii, 449.
Music, influence of on flame of coal gas, i, 416.
Müsset, Hetérogénie, v, 270.

N

Naphthaline, colored derivatives of, ii, 211, iii, 229, viii, 360.
Narcotic, bromid of potassium, viii, 267.
Nasmyth, *J.*, sun's surface, iv, 437.
age of moon's surface, ix, 112.
National Academy, see *Academy*.
Almanac, v, 465, vii, 448.
Observatory, see *Naval*.
Natural History Review, ii, 130.
Naturalist's Directory, notice of, ix, 374, xl, 142.
Naval Observatory, ii, 148.
Gilliss's observations at, v, 146.
Nebraska explorations, iv, 99.
forest trees of, ii, 165.
fossils, *Meek* and *Hayden* on, i, 126, iv, 137.
geol. of, *Meek*, ix, 157.
leaves, age of, i, 435.
meteoric iron, ii, 146.
Nebula, disappearance of, iii, 436.
in Orion, v, 102; spectrum of, xl, 133.
Nebulæ, double, v, 109.
recent researches, *Gautier*, v, 101, vii, 198.
spectra of, *Huggins*, xl, 77, 133.
variable brilliancy of, v, 107.
Nebular hypothesis, *Trowbridge*, viii, 344, ix, 25, 113, 363.
Hinrichs, ix, 46, 134, 276.
Nebulous matter, invisibility of, *D. Trowbridge*, vii, 210.
Nesbit, estimation of NO_5, vi, 116.
Nevada geol. survey, xl, 273.
N. Brunswick, antimony in, v, 150.
fossil insects of, ix, 357.
geol. reports of, ix, 356, xl, 142.
mineral localities in, *Marsh*, v, 210.
N. Jersey, age of Highlands of, ix, 221.
Cook's Geol. report of, ix, 359.
N. Mexico, Report on mines of, xl, 391.
New York, Amer. Inst. of, Report of, xl, 142.
Eastern, geol. of, ix, 96.
geol. survey, i, 125; see also, *J. Hall*.
Medical Journal, ix, 375.
Regents of Univ. of, report, i, 292, ii, 430, iii, 279, iv, 418.
Western, ancient works in, by *Cheney*, ii, 149.
N. Zealand, *Hooker's* Flora of, ix, 359.
Haast on geol. of, noticed, xl, 143.
exhibition at, 1865, viii, 300.
Newberry, *J. S.*, Amer. fossil fishes, iv, 73.
on Ohio flora, noticed, i, 130.
on fossils of N. W. boundary, noticed, vii, 148.
Heer's reply to, i, 435.
Newcomb, *S.*, vision through colored media, i, 418.
Newfoundland, heather in, iii, 22, viii, 122, 428, ix, 228.
mineral localities in, *Marsh*, v, 210.
Newstead meteoric iron, vi, 149.
Newton, *H. A.*, shooting stars, Nov., 1860, i, 137; Aug., 1861, ii, 448; Aug., 1863, vi, 302; Nov., 1863, vii, 141; Aug., 1864, viii, 432; Nov., 1864, ix, 113; Aug., 1865, xl, 284.
meteoric ring, ii, 449.
meteoric fireballs of Aug., 1860, iii, 338.
Quetelet on shooting stars, vi, 145.
procession and periodicity of Nov. star shower, vi, 300.
original accounts of Nov. star shower in former times, vii, 377, viii, 53.
altitudes of shooting stars, viii, 135.
of Nov., 1863, xl, 250.
Wilcocks on Ether in Solar System, ix, 114.
on shooting stars, ix, 193.
height of auroral arches, ix, 286, 371.
duration of flight of shooting stars, ix. 370.
Nichols, *J. A.*, pot-holes near Poultney, Vt., xl, 264.
Nichols, *J. R.*, corrosion in lead pipes, ii, 115.
Nickel, electrolytic precipitation of, as a method of analysis, ix, 64.
separation of, from cobalt, etc., ix, 58.
Nickerson, *L.*, periodic action of water, ix, 151.
Nicklès, *J.*, correspondence of, i, 266, ii, 95, iii, 108, iv, 120, v, 260, vi, 398, ix, 79.
brittleness of semi-metals, ii, 416.
changes in wine, v, 250.
solubility of sulphate of baryta in sulphuric acid, ix, 90.
Les electro-aimants et l'adherence magnetique, noticed, ii, 111.
Isomorphism entre les Métaux des Groupe de l'Azote, iv, 128.
Theorie Physique des Odeurs et des Saveurs, v, 270.
on wasium, noticed, vii, 116, viii, 419.
Nicotine, quantity produced, ii, 454.
Niger, valley of, iv, 93.
Nile explorations, iii, 259, vii, 75.
inundations, cause of, *Ferrel*, v, 62.
Niobic acid, vii, 118.
Nitrate of ethyl, ii, 177, iii, 86.
iron, *Ordway*, xl, 316.
methyl, iii, 227.
Nitric acid, ammonia and mercury, compound of, ii, 374.
detection of, vi, 268.
estimation of, vi, 116.
Nitrification, v, 113, 263.
history of the theory of, v, 271, 409.
Nitrite of ammonia, atmospheric, v, 423.
formed under heat, v, 113.
of ethyl, ii. 178.
Nitrogen, *Hunt* on, ii, 109.
determination of, vii, 350.
excretion of, in animals, vi, 271.
estimation of, *Lea*, i, 189.
question, *Johnson*, v, 426.
series, polyatomic bases of, i, 420.
Nitroglycerine, inhalation of, vi, 212.
Nitronapthaline, coloring matters from, ii, 211, iii, 229.
Nitroprussid of sodium, action of light on, vii, 408.
Nitroso-phenyline, ii, 417.
Nitrous acid, ii, 109, v, 263, 271, 409.
Nobert's test-plate, *Sullivant* and *Wormley*, i, 12.
Nomenclatnre in Nat. Hist., *Gray*, vii, 278.

Northers at Key West, *Hunt*, v, 392.
Northwest Boundary Survey, iv, 99, v, 239, vii, 148.
Norton, W. A., dimensions of Donati's comet, ii, 54.
molecular physics, viii, 61, 207, ix, 237, xl, 61.
Nova Scotia, *Davidson's* Brachiopods of, vi, 277.
Carboniferous Flora of, *Dawson*, vii, 419.
glacial action in, *Silliman*, vii, 417.
gold of, ii, 395, iv, 212, viii, 104.
gypsum of, natro-boro-calcite in, ii, 9.
mineral localities in, *Marsh*, v, 210.
Saurian remains, iii, 138, 278, iv, 1.
Silurian rocks of, viii, 289.
Novara, Voyage of, noticed, xl, 139.

O

Oaks, *De Candolle* on fruit of, v, 430.
Oases, making of, viii, 300.
Obion river basin, v, 233.
OBITUARY :—
F. Alger, viii, 302, 449.
P. Berthier, iii, 103.
J. B. Biot, iii, 441, iv, 120.
C. L. Blume, iii, 428.
M. N. Blytt, v, 449.
G. P. Bond, ix, 235.
F. Boott, vii, 288.
W. Borrer, v, 449.
A. Bravais, vi, 401.
H. G. Bronn, iv, 304.
Cappocci, vii, 304.
S. A. Casseday, i, 155.
J. R. Chilton, vi, 314.
A. Clapp, v, 306, 450.
P. L. A. Cordier, ii, 101.
H. Cumming, xl, 395.
W. Darlington, vi, 132.
H. Dauber, ii, 150.
P. Daussy, i, 268.
F. Deppe, iii, 427.
C. M. Despretz, vi, 398.
W. H. DeVriese, iii, 428.
L. Dufour, xl, 140.
Duméril, i, 266.
G. H. Emerson, ix, 373.
E. Emmons, vii, 151.
J. F. Encke, xl, 396.
J. P. Espy, i, 151.
H. Falconer, ix, 236, xl, 139.
H. Fitz, vii, 149.
Adm. Fitzroy, xl, 140.
A. E. Fürnrohr, iii, 427.
A. E. P. de Gasparin, v, 261.
J. Gay, vii, 292.
J. W. Gibbs, i, 463.
J. M. Gilliss, ix, 235.
M. de Grateloup, iii, 149.
P. Gratiolet, xl, 140.
B. D. Greene, v, 449.
A. Gressly, xl, 140.
C. W. Hackley, i, 303.
E. Haeusser, i, 461.
W. R. Hamilton, xl, 396.
Henckel v. Donnersmarck, iii, 427.
J. S. Henslow, iii, 427.
OBITUARY :—
E. C. Herrick, iv, 159.
S. P. Hildreth, vi, 312.
E. Hitchcock, vii, 302.
Prof. Hochstetter, i, 461.
W. J. Hooker, xl, 288.
J. S. Hubbard, vi, 313.
E. B. Hunt, vi, 450.
E. Ives, ii, 455.
E. Jaines, iii, 428.
Jobard, iii, 108.
E. F. Jomard, v, 261.
D. G. von Kieser, v, 449.
J. F. Klotzsch, i, 461.
Kupffer, xl, 140.
M. C. Leavenworth, v, 306, 451.
J. LeConte, i, 303, 462.
J. G. C. Lehmann, i, 461.
K. C. v. Leonhard, iii, 453.
J. W. Lubbock, xl, 288.
J. T. Mackay, v, 449.
N. S. Manross, iv, 452.
M. Martens, vii, 288.
S. Masterman, vi, 314, 448.
O. M. Mitchel, iv, 451.
E. Mitscherlich, vi, 451.
H. B. A. Moquin-tandon, vi, 401, vii, 288.
D. D. Owen, i, 153.
T. Parkman, v, 155.
Parmentier, iii, 113.
J. Paxton, xl, 140.
J. B. Payer, i, 267, 462.
L. Péan de St. Gilles, vi, 402.
J. A. Pearce, v, 155.
G. Plana, vii, 304.
J. T. Plummer, xl, 396.
H. A. Prout, iii, 453.
E. Pugh, viii, 149, 301.
J. Renwick, v, 306.
J. Richardson, xl, 140.
J. Robb, ii, 150, 304.
H. Rose, vii, 304, viii, 305.
I. G. St. Hilaire, iii, 149, iv, 122.
J. v. Salm-Dyck, iii, 427.
H. R. Schoolcraft, ix, 114.
G. H. v. Schubert, i, 461.
H. H. de Senarmont, iv, 304, v, 260.
M. de Serres, iv, 303, vi, 401.
C. W. Short, v, 451, vi, 130.
Silbermann, xl, 288.
B. Silliman, ix, 1.
W. H. Smith, xl, 395.
J. H. Speke, viii, 449.
J. Steetz, v, 449.
C. v. Steven, vii, 288.
I. I. Stevens, ix, 305.
F. G. W. Struve, ix, 114, xl, 145.
W. J. Taylor, vii, 447.
M. Tenore, iii, 427.
Marquis de Tristan, iii, 428.
J. Tweedie, v, 449.
Valenciennes, xl, 140.
R. B. Van den Bosch, iii, 428.
L. de Vilmorin, i, 461.
R. Wagner, viii, 149.
W. J. Walker, ix, 374.
G. W. F. Wenderoth, iii, 428.
T. B. Wilson, ix, 373.
S. P. Woodward, xl, 288.

Object-glass, new achromatic, vi, 446.
Observatories, new, *Nicklès*, iv, 125.
Observatory of Chicago. viii, 148.
of Harvard Coll., ix, 364.
Naval, at Washington, ii, 148, v, 146.
Ocean, depth of, iii, 39, 121.
motions of, *Ferrel*, i, 45.
saltness of, iv, 272.
Oefele, on new sulphur compounds, viii, 265.
Ohio, *Newberry's* Flora and Ferns of, i, 130.
river basin, v, 230.
meteorites in, i, 87, ii, 30, viii, 385.
rain-fall in, ii, 296.
Oil, essential, adulteration of, with oil of turpentine, *Maier*, ix, 273.
mineral, see *Petroleum*.
Olefiant gas transformed into organic acids, i, 278.
Oliver on antherology, iv, 282.
wood-cells of Hamamelideæ, iv, 284.
on the Loranthaceæ, vi, 291.
Lessons in Botany, viii, 124.
Optical phenomena of "Silver Spring," Florida, *Le Conte*, i, 1.
subjective, *Rood*, i, 417.
studies, Dove's, *Rood*, i, 109.
Optics, see LIGHT, SPECTROSCOPE.
Orduay, J. M., Wetherill on manufacture of vinegar, i, 450.
waterglass, ii, 153, 337, iii, 27, v, 185, xl, 173.
nitrate of iron, xl, 316.
Organic acids, ii, 412.
alkaloids, separation of, iii, 415.
analysis, carbonic acid in, iii, 415.
process of, viii, 387.
bodies, chlorinated, iv, 133.
substances, classification of, by series, *Schiel*, ii, 48.
Organisms, animal, kinic acid in, v, 291.
Origin of species, *Huxley*, vi, 312, *Bates*, vi, 285, *Owen*, vi, 296.
Orion, nebula of, v, 102.
spectrum of, *Huggins*, xl, 133.
Ornithology of Labrador, *Coues* on, iii, 298.
Orthoscopic eye-piece, *Tolles's*, i, 112.
Osmium, resolution from ore, i, 64.
spectrum, vi, 267.
Oudry, on metallic painting, v, 264.
Owen, D. D., obituary, i, 153.
Geol. survey of Ind., by, noticed, v, 154.
Owen R., caverns of Bruniquel, viii, 281.
on the Awk, viii, 431.
on *Du Chaillu's* collection, noticed, ii, 435.
on brain of man and monkey, noticed, iv, 188, 440.
Archæopteryx, vi, 127.
monograph of the Aye-Aye, vi, 294.
Anthrakerpeton, xl, 124.
Owen, R. E., on N. Mexico Mines, noticed, xl, 391.
Oxalate of ethyl, *Lea*, ix, 210.
Oxyd of ethylene, i, 277, iv, 130.
of iron from lime and magnesia, i, 113.
of lead, free from copper and iron, i, 116.
Oxyds, new metallic, vii, 116, 119.
Oxyethylene bases, v, 114.
Oxygen, allotropic form, v, 111.
fundamental properties, v, 112.
Oxygen, *Meissner* on, vii, 325, viii, 18.
preparation of, i, 280, 427, v, 283, ix, 95, xl, 114.
to counteract gangrene, v, 266.
Oxygenated beverages, *Maumené* on, iii, 116.
Ozone and nitrous acid, v, 263; *Hunt*, ii, 109, v, 271.
on insensitive iodid and bromid of silver, ix, 74.
germination affected by, vii, 373.
Meissner on, vii, 325, viii, 18.
preparation of, v, 111.
restores engravings, ii, 275.

P

Pacific, earthquakes in, xl, 364.
exploring expedition, iv, 98.
guano islands of, *Hague*, iv, 224.
Packard's Bombycidæ, mention of, viii, 431, ix, 363.
Painting, metallic, v, 264.
Paleontology, by *J. Hall*, reviewed, i, 292, ii, 430, iii, 127, 280, vii, 137.
see further, GEOLOGY.
Palmer, on British Columbia, viii, 146.
Pander, on Devonian fishes, vi, 127.
Paper from maize, viii, 299.
Parabolic orbits; *Brunnow's* method, viii, 79.
Paraffin oil, crude, viii, 448.
Paris Acad. of Sci., ii, 95, vii, 443, xl, 139.
Carte Agronomique de, v, 270.
Flore des environs de, vii, 434.
insalubrity of air of, i, 268.
mortality in, xl, 139.
water-works about, vii, 443.
Parkhurst, H. M., elements of asteroid (74), iv, 430.
Parkman, T., action of sulphur and phosphorus groups on solutions of metals, iii, 328.
carbonates of alumina, glucina, etc., iv, 321.
obituary of, v, 155.
Parmentier, biographical notice, iii, 113.
Parrish's Practical Pharmacy, viii, 150
Parry, C. C., Rocky mountain physiography, iii, 231.
obituary of E. James, iii, 428.
flora collected by, iii, 141, 237, 404, iv, 249, 330, v, 137, vi, 129.
Parthenogenesis in plants, vi, 292.
Pasteur, spontaneous generation, ii, 1.
on preserving animal substances, vii, 440.
member of French Academy, v, 203.
Paullinia sorbilis and its products, vi, 129.
Paxton, J., obituary, xl, 140.
Payen, des Substances Alimentaires, ii, 101.
Précis de Chimie industrielle, ii, 103.
Payer, J. B., obituary, i, 267, 462.
Péan de St. Gilles, vi, 492.
Pearce, J. A., obituary, v, 155.
Pearls, artificial, iii, 120.
Pearse, J. B., on chlorite group, vii, 221.
Peat-sandstone, *Meyn* on, v, 123.
Pebbles, elongated, i, 375, 440.

Peclet, documents relatifs au chauffage, ii, 104.
Peirce, C. S., chemical theory of interpenetration, v, 78.
Pelouze, on petroleum, vi, 413.
Pendleton, G. C., earthquakes in Pacific, xl, 364.
Penn., magnetic survey of, *Bache*, v, 359.
oil region of, *Sayles*, ix, 100
Penobscot bay, glacial action in, v, 249, vi, 274, vii, 335.
Percy's Metallurgy, v, 118, viii, 149.
Perkin, H. W., coloring matters from coal-tar, ii, 267, 416.
mauve, vii, 413.
Permeability of iron, vii, 441.
Permian, see GEOLOGY.
Perrey, A., theory of earthquakes, vii, 1.
on volcanoes of Kurile Is., noticed, xl, 272.
Persia, *Khanikoff* on, iv, 362.
Peru, earthquake in, xl, 365.
Petermann, on the North Pole, xl, 393.
Peters, on szaibelyite, iv, 221, vii, 271.
Petherick's Expedition, iii, 260.
Petrifaction of animal substances, viii, 441.
Petroleum, Albert coal related to, ix, 267, 356.
American, constitution of, *Schorlemmer*, vi, 115, 413; *Pelouze* and *Cahours*, vi, 413.
California, *Silliman*, ix, 101, 341.
Chicago, boring at, xl, 388.
Michigan, geological position of, *Winchell*, ix, 350.
Pennsylvania, ix, 100.
chem. and geol. hist. of, *Hunt*, v, 157.
geol. relations of, *Andrews*, ii, 85.
Gesner on, i, 147, xl, 291.
wells, *Evans*, viii, 159.
see further, *Hydrocarbon*, *Asphaltum*.
Phenamine, ii, 268.
Phenate changed to rosalate of lime, iv, 408.
Phenylic acid changed to rosalic, iv, 408.
Philadelphia Acad. Nat. Sci., Journal and Proceedings of, i, 305, iii, 159, iv, 305, 450, v, 156, vi, 451, vii, 156, 449, viii, 152, 451, ix, 116, xl, 143.
Phillips's life on the earth, reviewed, i, 444.
Philosophical apparatus, *Ritchie's* illustrated catalogue, i, 304.
Phipson, T. L., on Sombrerite, vi, 423.
Phosphate of lithia, *Fresenius* on, iii, 416.
Phosphoric acid, *Chancel's* determination of, i, 279, 281.
in igneous rocks, *Schiel*, i, 353.
Phosphorus, action of, on metal solutions, iii, 328.
amorphous, *Nicklès*, iii, 115.
coloration of flame by, vi, 116, 267.
cyanid of, vii, 269.
luminosity of, iv, 437.
series, polyatomic bases of, i, 420.
spectrum of, iii, 214, vi, 267.
Phosphuretted hydrogen, *Rose*, viii, 313.
Photographic camera, globe lens for, v, 319.
Brewster's improvements in, ii, 227.
Photographic collodion, formulæ for, ii, 426, v, 419.
copying, *Emerson*, iv, 413.
invisible image, *Lea*, xl, 109.
plate, iodized, action of electric light on, vii, 207, viii, 423.
sensitive, action of light on, v, 286.
transparency, *Miller*, vi, 103, viii, 107.
Photographs of spectra, *Miller*, ii, 408, vi, 103, viii, 107.
faded, yellow color of, vii, 438.
Photography applied to the microscope, *Rood*, ii, 186.
astronomical, ix, 304, 369.
developing solution in, *Verrill*, ix, 221.
dry process in, ii, 426, vii, 123.
illustrating markings on Pleurosigma angulatum, ii, 335.
magnesium light for, vii, 440, xl, 287.
Mayer & Pierson on, noticed, v, 269.
military, iii, 130.
miscellaneous facts in, vi, 419.
redevelopers in, vi, 417.
selenocyanids in, vi, 416.
silver waste in, vi, 417.
sulphocyanid of ammonia in, vi, 417.
tannin process in, *Emerson*, iv, 134.
Photometer, Dove's, *Rood*, iii, 269, vi, 60.
Physics, interpolation in, iv, 27.
molecular, *Norton*, viii, 61, 207, ix, 237, xl, 61.
Silliman's Principles of, i, 149.
see *Electricity*, *Heat*, *Light*, *Magnetism*.
Picramic acid, *Lea*, i, 188, ii, 210.
Picric acid, *Lea*, i, 75, 78, ii, 180.
Picrotoxine, detection of, *Langley*, iv, 109.
Pictet, F. J., quaternian period, i, 345.
Pike's Peak, height of, viii, 148.
Pisani, on astrophyllite, vii, 272.
on paracolumbite, vii, 359.
analysis of pollux, viii, 115.
garnet of Elba, viii, 277.
Pisko, Die fluorescens des Lichtes, ii, 111.
Pittsburgh, gun-casting at, vii, 296.
Plana, Giovanni, obituary, vii, 304.
Planetary distances, *Kirkwood*, ix, 66.
law of, *Hinrichs*, ix, 144.
Planetology, *Hinrichs*, ix, 46, 134, 276.
Planets, density, rotation, and relative age of, *Hinrichs*, vii, 36; *Kirkwood*, viii, 9.
inclination of orbits of, to invariable plane, *Hinrichs*, xl, 131.
origin of, *Trowbridge*, ix, 30.
see also *Asteroid*.
Plants, dimorphism and trimorphism in, iv, 285, 419, vi, 279, ix, 101, 104, 360.
fossil, of Nebraska, *Heer*, i, 435.
see further, BOTANY.
Platinum, American process of working, *Storer*, iii, 124.
from Oregon, metal in, iii, 351.
metals, v, 256; *Gibbs*, i, 63, iv, 341, vii, 57; *Lea*, viii, 81, 248.
Playfair, on density of vapors, iii, 413.
Pleurodyctium problematicum, v, 82.
Pleurosigma angulatum, nature of markings, *Rood*, ii, 335.
Plummer, J. T., obituary, xl, 396.
Poey, A., temperature of the Atlantic, iii, 268.

Poisoning, effects of strychnine and curare antagonistic, ii, 98.
Polarization of American oil of turpentine, ii, 107.
mechanical, experiments in, *Chase*, xl, 313.
Polarized light, instrument to illustrate, *Snell*, ii, 376.
reflection of, vi, 109.
Polyatomic bases of nitrogen, phosphorus and arsenic series, i, 420.
Polyethylenic alcohols, i, 280.
Polyglyceric alcohols and anhydrids, ii, 108.
Polytechnique Association, vi, 407.
Popp, on yttria, erbium, wasium, viii, 418, 419.
Portland Soc. Nat. Hist., Journal, ix, 116.
Proceedings, v, 295.
Potash, indirect determinations of, vii, 344.
picric acid as test for, i, 75.
Potassium, bromid of, viii, 267.
ferrocyanid of, urea from, ii, 179.
fluohydrate of fluorid of, vii, 355.
peroxyd of, iii, 273.
monosulphid of, on bromid of ethylene, vii, 390.
Pot-holes near Poultney, Vt., xl, 264.
Potsdam, see GEOLOGY.
Pounarède, new mode of reducing metals, viii, 267.
Prairies, origin of, *Dana*, xl, 293.
Englemann, vi, 384.
Lesquereux, ix, 317, xl, 23.
Winchell, viii, 332, 444.
Prescott, *W.*, species of Chiton, viii, 185, 431.
Preservation of animal substances, vii, 440, viii, 441.
building materials, vi, 406.
colors of star-fish, *Verrill*, ix, 223.
seeds, viii, 444.
wood, ii, 274, v, 267, viii, 299.
Primordial, see GEOLOGY.
Prior's Names of British Plants, vii, 433.
Priority, note on rule of, iii, 132, vi, 309.
Prisms, bisulphids of carbon and flint glass, *Rood*, iv, 299, v, 356.
Prize offered by French Academy, vii, 443.
questions of scientific societies, iv, 450.
to Ruhmkorff, viii, 301.
to Sorel, viii, 301.
Propyl-phycit, *Carius* on, xl, 115.
Protagon, xl, 113.
Protein substances, artificial, iii, 113.
Proto-organisms, influence of light on production of, ix, 81.
Protosulphid of carbon, *Baudrimont's*, i, 281.
Protozoans, oceanic, related to sponges, *Dana*, v, 386.
Prout, H. A., obituary, iii, 453.
Provancher's Flore Canadienne, v, 445.
Prussian expedition to Japan and China, ii, 148.
meteorological bureau, xl, 288.
Pseudomorphism and pseudomorphosis, i, 273.
Pteriidæ, *Meek*, vii, 212.
Pugh, E., obituary, viii, 149, 301.
Pupa vetusta, vi, 431.
Putnam's Naturalist's Directory, notice of, ix, 374, xl, 142.
Putrefaction, alkaloids produced by, vi, 416.
Pyroschists, history of, *Hunt*, v, 157.
analysis of, *Whitney*, v, 160.
Pyroxiline paper, electrical properties of, *Johnston*, vii, 115, ix, 348.

Q

Quaternian period, i, 345.
Quatrefages's Unité de l'Espéce Humaine, iv, 128.
Quebec group, see GEOLOGY.
Quetelet, Sur la Physique du Globe, v, 152.
on shooting stars, reviewed, vi, 145.
on August meteors, vi, 444.
Quicksilver mines, New Almaden, *Silliman*, viii, 190.

R

Radde's Botany of S. E. Siberia, iv, 286.
Radiation of heat by gases, ii, 106.
through atmosphere, *Tyndall* on, vi, 99.
Radicle in plants, *Gray*, viii, 125.
Rain-fall in O., *McMillan*, ii, 296.
following discharge of ordnance, *Lewis*, ii, 296.
Rammelsberg, Mineralchemie by, noticed, i, 354, iii, 204.
on N. A. meteorites, iv, 297, viii, 425.
analyses of minerals, viii, 116.
Ramsay, A. C., glacial origin of lakes, v, 324.
transition between Lias and Oolite, and between Cretaceous and Tertiary, viii, 285, 287.
Address by, noticed, vi, 278.
Rana, E. S., heather in U. S., iii, 22.
Rautenberg, on urine of oxen, v, 291.
Ravenel's Fungi of Carolina, i, 130.
Ray-bands, *Hunt*, v, 391.
Raymond, Les marines de France et d'Angleterre, noticed, vi, 407.
Raynolds, W. F., report of explorations, noticed, i, 229, iv, 100.
Reader, The, noticed, vii, 456.
Red river basin, v, 224.
Redevelopers, *Blanchard, Simpson, Linsay, Liefert*, and *Waldak*, on, vi, 417.
Redfield, W. C., and *Wm. Reid*, Correspondence of, iv, 442.
Refraction, atmospheric, *Challis*, iv, 434.
of fluid compounds, *Landolt*, v, 415.
Regel's Monographia Betulacearum, iii, 139.
Regelation, *Gibbs*, i, 414.
Reynault on heat of elements, iii, 270.
Reich, on indium, vi, 415, vii, 269, viii, 113.
on silver in lead, v, 119.
Reinsch's test for arsenic, deposit on copper in, ii, 117.
Werther on, ii, 277.
Relief, perception of, *Emerson*, iv, 312.
Remelè, on sulphur compounds of uranium, ix, 344.
Rendu's Intelligence des bêtes, noticed, vi, 407.

Renwick, J., obituary, v, 306.
Retorts, improved, *Lea*, iv, 302.
Reuben, L., blood-corpuscles in retina, i, 325.
Revolving disks, appearances produced by, *Rood*, v, 357.
Reynolds, selenocyanids in photography, vi, 416.
Rhizopods of the Azoic, vii, 273, 431, xl, 344, 391.
sponge-secretions in, viii, 131.
Rhodizonic acid, iii, 274.
Richardson, J., obituary, xl, 140.
Richter, on silicon in pig-iron, v, 118.
desulphuration in puddling, v, 119.
manganese in iron, v, 120.
indium, vi, 415, vii, 269, viii, 113.
Riley, E, titanium in iron, vii, 126.
Ritchie's catalogue of apparatus, i, 304.
Ritter's Comparative Geography, xl, 142.
Robb, J., obituary, ii, 150, 304.
Robbins, mode of preparing oxygen, ix, 95.
Rock oil, see *Petroleum*.
Rocks, *Hunt* on, ii, 285, vii, 248, viii, 91, 174, ix, 176.
phosphoric acid in igneous, i, 353.
Rocky Mts., *Parry's* Flora of, iii, 141, 237, 404, iv, 249, 330, v, 137, vi, 129.
physiography of, *Parry*, iii, 231.
period of elevation of, iii, 305.
primordial sandstone of, iii, 68.
Roemer's Silurian fauna of W. Tenn., i, 127, 205.
Roepper W. T., thallium in furnace products, v, 420.
Gemsbart electroscope, vi, 111.
Rogers, H. D., age of N. J. Highlands, ix, 221.
Rogers, W. B., pebbles in Newport conglomerate, i, 440.
electric illuminations, vi, 307.
Rominger, C., Waukesha limestone of Wis., iv, 136.
Calamoporæ from Mich., iv, 389.
Pleurodyctium problematicum, v, 82.
Leptocœlia concava, v, 84.
Rood, O. N., stereoscopic drawing, i, 71.
dichroscope, i, 107.
Dove's Optical Studies, i, 109.
experiments on lustre, i, 339.
subjective optical phenomena, i, 417.
perception of distance and color, ii, 184.
application of photography to microscope, ii, 186.
markings on Pleurosigma angulatum shown by photography, ii, 335.
microscopic forms, iii, 65.
electric spark studied, iii, 219, viii, 361.
Dove's photometer, iii, 269, vi, 60.
spectrum by solution of nitrate of didymium, iv, 129.
stereoscopic experiments, iv, 199.
bisulphid of carbon prisms, iv, 299, v, 356.
revolving disks, v, 357.
action of weak electric light on iodized plate, vii, 207.
combination of light of different tints, ix, 254.
experiment with gyroscope, ix, 259.
Rood, O. N., apparatus for producing luster without use of lustrous surfaces or the stereoscope, ix, 260.
made professor in Columbia Coll., vii, 147.
Roots, function of, *Henrici*, vii, 136.
Rosalate, from phenate of lime, iv, 408.
Rosalic acid, from phenylic, iv, 408.
Roscoe, on hyperchloric acid, iv, 131.
Rose, G., carbonate of lime at high temperature, ii, 112, vi, 278.
isomorphism of silica with deutoxyd of manganese, viii, 113.
Rose, H., contrib. to analytical chemistry, i, 112.
on columbite, v, 426, vii, 117.
new series of metallic oxyds, vii, 119.
obituary of, vii, 304.
biography of, *Dexter*, viii, 305.
Roseine from coal-tar, *Perkin*, ii, 270.
Rosse, on nebulæ, noticed, vii, 198.
Rotation in Saururus cernuus, *Schæffer*, iv, 400.
Roussin, on action of light on nitroprussid of sodium, vii, 408.
Royal Geographical Soc., Proc. of, iv, 358.
Institution of Great Britain, Proceedings, noticed, vi, 99.
Society, vi, 103, vii, 100.
medals of, iii, 155, viii, 144, ix, 114.
Rubidge, R. N., fossil discoveries in Africa, xl, 123.
Rubidia, tartrates of, vii, 70.
Rubidium, ii, 409, iv, 367, vi, 114, 413.
in plants, iv, 407.
in triphyline, *Blake*, iii, 274.
Ruhmkorff, prize to, and notice of, viii, 301, ix, 79.
Ruskin, J., action of glaciers, ix, 98.
Russia, geol. map of, xl, 123.
Ruthenium, i, 65.
and ammonia compounds, iv, 133.
Rutherfurd, L. M., companion to Sirius, iv, 294, v, 407.
spectroscope observations, v, 71, 407.
stellar spectra, v, 407, vi, 154.
construction of spectroscope, v, 407, ix, 129.
astronomical photography, ix, 304.

S

Saccharimeter, *Wild*, ix, 91.
to detect adulteration, ix, 273.
Saemann, L., geological phenomena in solar system, iii, 36.
Paris correspondence by, iii, 149, 438.
Mineral-comptoir of, ix, 372.
Safely, charcoal formed under pressure, viii, 441.
Safety lamp for laboratory, *Warren*, iii, 275.
Safford, J. M., Upper Silurian of West Tenn., i, 205
Cretaceous and superior formations of West Tenn., vii, 360.
Safford, T. H., elements of comet II, 1861, ii, 259.
discovers Niobe (72), iii, 287, 436.
elements of Clytia (73), iv, 430.
Sahara, expedition to, vii, 146, 445.

Sailing Directions, *Maury's*, notice of, vii, 447.
St. Francis river basin, v, 227.
St. Helena, magnetic force at, ix, 316.
St. Hilaire, I. G., Synopsis of lectures, 1850, ii, 431.
System of Zoology, iv, 292.
obituary, iii, 149, iv, 122.
St. Louis Acad. Sci., Transactions, vi, 128.
earthquake at, Aug., 1865, xl, 362.
Sal-ammoniac, vapor density of, vi, 408, ix, 346.
Saliferous rocks of Michigan, iv, 307.
Salm-Dyck, J. v., obituary, iii, 427.
Salt, passage of radiant heat through, vii, 267.
crystals of Sombrero, xl, 368.
mine in Louisiana, vi, 308.
springs of Michigan, iv, 307.
waters of Alleghany and Keskeminetas valleys, *Stieren*, iv, 46.
Salter, J. W., fossils in Lingula-flags, viii, 122.
on fossil crustacea, noticed, vi, 277.
Saltness of sea, *Forchhammer* on, iv, 272.
Salts of chlorine, ii, 108.
Salvètat, on Ceramic arts of London Exhibition, v, 268.
San Juan Exploring Expedition, iv, 98.
Sandhills of Virginia, *Latrobe*, xl, 261.
Sandwich Isl., upheaval of the sea at, i, 301.
volcano of, v, 296, vii, 415, xl, 122.
Sanford, L. J., on the gorilla, iii, 48.
Santa, Chemins de Fer, iv, 128.
Saponification by alkaline carbonates, ii, 117.
Sarepta meteoric iron, vi, 150, viii, 424.
Sars, marine crustaceans in Norway, viii, 293.
Sawitch, acetylene from monobromid of ethylene, ii, 414.
Sayles, I., oil region of Penn., ix, 100.
Scacchi, on polysymmetry, noticed, xl, 260.
Schœffer, G. C., rotation in Saururus cernuus, iv, 400.
origin of nitrites, v, 409.
Scheerer, arsenids of copper, v, 296.
Scheurer-Kestner, Théorie Chimique des Types, v, 270.
on saponification by alkaline carbonates, ii, 117.
Schiel, J., phosphoric acid in igneous rocks, i, 353.
classification by series, ii, 48.
Einleitung in das Studium der Organischen Chemie, ii, 111.
Schlagintweit, report on High Asia, noticed, i, 303, ii, 300, iv, 96.
configurations of India and High Asia, iv, 101.
Schmidt, M., maximum of Omicron Ceti, iv, 431.
Schönbein, ozone, v, 111.
nitrite of ammonium, v, 113.
peroxyd of hydrogen, v, 114.
Schoolcraft, H. R., obituary, ix, 114.
Schorlemmer, petroleum, vi, 115, 413.
Schott, Aroideæ, iii, 142.
Schubert, on name of asteroid (56), iv, 430.
Schubert, G. H. v., obituary, i, 461.
Schultz, chemistry of germination, v, 290.
Sciences, declaration of English students of, noticed, xl, 289.
Scientific ethics, notes on Hall's reply to criticisms of this Journal, *Editors*, iii, 132.
Review, noticed, xl, 291.
Scirpi of U. S., new, viii, 289.
Scott, J., dioico-dimorphism, ix, 101.
Scott, J. T., earthquake, New Madrid, Aug. 1865, xl, 362.
Scott, W. K., change of level in Green Mts., viii, 243.
Scoutetten, electricity of the blood, viii, 110.
mineral waters, xl, 288.
Scudder, S. H., Devonian insects of N. B., ix, 357.
Miamia and Hemeristia, xl, 268.
Scudo's L'année musicale, i, 155.
Sea, saltness of, *Forchhammer*, iv, 272.
Sea-sickness, physiology of, *Bache*, iv, 17.
Secchi, meteors of 1860, i, 137.
Sédillot, Histoire des Arabes, v, 269.
Seeds, preservation of, viii, 444.
Seemann on Fiji Is., noticed, iv, 366, v, 446.
Seguin, phosphorus and sulphur spectra, iii, 414.
Selenocyanids in photography, *Reynolds*, vi, 416.
Sellers, C., globe lens for photographic camera, v, 319.
Selwyn, sun-autographs, iv, 436.
Semi-metals, brittleness of, *Nicklès*, ii, 416.
Senarmont, H. H. de, obituary, iv, 304, v, 260.
Serimeter, i, 273.
Serres, M. de, obituary, iv, 303, vi, 401.
Sexes, production of, *Thury*, viii, 132, ix, 84.
criticised by *Coste*, xl, 139.
temperature of, *Davy* on, viii, 448.
Shasta, Mt., height of, *Whitney*, vi, 123, vii, 81.
Sheffield Laboratory contributions, i, 281, iii, 313, iv, 243, 367, 402, v, 94, vii, 67, 344, ix, 132.
Shepard, C. U., catalogue of meteoric collection of, i, 456.
mineralogical notices, vii, 405, xl, 110, 123.
on spartaite, ix, 174.
shooting stars, Nov. 1860, i, 137.
Ship canal near Isthmus of Darien, survey report, iii, 296.
Shooting stars, *Glaisher*, viii, 433; *Greg*, vii, 445; *Newton*, ix, 193; *Twining*, v, 149, vii, 445.
altitudes of, *Newton*, viii, 135, xl, 250.
cosmical origin of, *Newton*, vi, 145.
duration of flight of, ix, 370.
Greg's catalogue of, noticed, iii, 291.
luminosity of, *Marsh*, vi, 92.
radiants of, *Heis*, viii, 296.
spectrum of, *Herschel*, ix, 232.
of August, *Twining*, ii, 444; *Newton*, ii, 449.
of Nov., original accounts of, in former times, *Newton*, vii, 377, viii, 53.

Shooting stars, procession and periodicity of, *Newton*, vi, 300.
of 1565, v, 461.
Aug., 1860, i, 136, iii, 338.
Nov., 1860, i, 137.
March, 1861, iv, 156.
April, 1861, ii, 294.
Aug., 1861, ii, 294, 448.
Oct., 1861, ii, 443, iii, 147.
Nov., 1861, *Twining*, iii, 146.
Dec., 1861, iii, 148, 291, iv, 431.
1862, in England, v, 461.
Jan., 1862, *Herrick*, iii, 290, 291.
Aug., 1862, *Twining*, iv, 295.
Nov., 1862, *Twining*, v, 146.
Dec., 1862, *Marsh*, v, 302.
Jan., 1863, *Masterman*, v, 149.
March, 1863, *Heis* on, vi, 445.
April, 1863, vi, 154.
Aug., 1863, vi, 301, 444.
Nov., 1863, vi, 446, vii, 141, xl, 250.
July, 1864, *Gardner*, viii, 295.
Aug., 1864, *Newton*, viii, 432.
Nov., 1864, ix, 113, 229.
Jan., 1865, ix, 231.
Aug., 1865, xl, 284.
Short, C. W., obituary, v, 451, vi, 130.
Shufeldt, G. A., oil-boring at Chicago, xl, 388.
Shumard, B. F., primordial zone of Texas, new fossils, ii, 213.
on Cretaceous strata of Texas, noticed, i, 127, iii, 300.
removal of, i, 124, 294, 460.
Siemens's gas-furnaces, iv, 277, ix, 232, 344.
Sierra Nevada, high peaks of, ix, 10.
Triassic rocks of, viii, 260.
Silbermann, obituary of, xl, 288.
Silica in the higher plants, *Johnson*, v, 124.
isomorphism with deutoxyd of manganese, viii, 113.
Silicon, compounds of, vi, 115, vii, 120.
crystallized, in pig-iron, v, 118.
Silkworm, see ZOOLOGY.
Silliman, B., obituary, ix, 1.
Silliman, B., Jr., book notices, ii, 149, iv, 444, v, 134, 146, 152, 303, 304, vi, 310, 311, 447.
on *Quetelet's* Physique du Globe, v, 154.
obituaries by, v, 155, 306, vi, 312, 313, 450.
Webster's process for oxygen, v, 283.
spectroscope, v, 408.
Nat. Acad. of Science, v, 462.
Vermillion salt mine, vi, 308.
pyroxiline paper and gun cotton, vii, 115.
note on wasium, vii, 116.
glacial action in Nova Scotia, vii, 417.
barrel-quartz of Nova Scotia, viii, 104.
New Almaden quicksilver mines, viii, 190.
petroleum of California, ix, 101, 341.
deep placers of S. and Middle Yuba, xl, 1.
Principles of Physics by, noticed, i, 149.
Silurian, see GEOLOGY.
Silver Spring of Florida, optical phenomena, *Le Conte*, i, 1.
Simon, L'Ouvrière, noticed, iv, 128.
Simpson, on redevelopers, vi, 418.
sulphocyanid of ammonia, vi, 417.
Sirius, companion of, *Bond*, iii, 286.
Rutherfurd, iv, 294, v, 407.
Smith, G., Hist. of Delaware Co., Pa., ix, 236.
Smith, H. L., binocular microscope, viii, 111.
illuminator for opaque objects, xl, 238.
growing slide for microscope, xl, 241.
Smith, J. L., Ohio meteorites, i, 87, viii, 385.
Ky. and Tenn. meteorites, i, 151, 264.
Bishopville meteorite, viii, 225, 425.
Atacama meteorite, viii, 386.
Arkansas meteorite, ix, 372, xl, 213.
bisulphate of soda, in analysis, xl, 248.
Smith, R. A., absorption of gases by charcoal, vi, 411.
Smith, W. H., obituary, xl, 395.
Smithsonian Inst., distributes Nat. Hist. specimens, iii, 151, 441.
explorations encouraged by, v, 236.
Contrib. to Knowledge, vi, 141.
Report for 1860, noticed, iii, 296; 1861, iv, 448; 1862, viii, 150; 1863, xl, 289.
Smyth, C. P., electric currents photographed, viii, 423.
Smyth, W. W., Jurors' Report London Exhibition, 1862, noticed, vi, 273.
Snell, E. S., instrument to illustrate vibrations in polarized light, ii, 376.
Snow's proposal to search for Franklin relics, i, 57.
Soap, value of a, *Gracger* on, i, 114.
Social Science Review, noticed, ix, 374.
Soda, bisulphate of, in analysis, xl, 248.
hydrate of, vii, 117.
hyposulphite of, vii, 346.
indirect determination of, vii, 344.
manufacture, vi, 269.
Sodium, acetate of, separating iron and aluminum, *Gibbs*, ix, 60.
nitro-prussid of, action of light on, vii, 408.
peroxyd of, iii, 273.
spectrum, v, 408, 414.
Soil-analysis, review of, *Johnson*, ii, 233.
Soils, *Müller* on composition of, v, 292.
Solar atmosphere, analysis of, *Kirchhoff*, i, 103.
eclipse, July, 1860, i, 139, iii, 145.
halo described, xl, 394.
spectrum, iv, 406, v, 413, viii, 415, 416.
Fraunhofer's lines in, v, 411, ix, 215.
Kirchhoff's memoir on, iv, 404, vi, 266.
system, constitution of, *Le Verrier*, ii, 222.
geol. phenomena in, iii, 36.
harmonies of, *Kirkwood*, viii, 1.
history of, *Hinrichs*, ix, 281.
influence of ether in, *Wilcocks* on, ix, 114.
see further, *Sun*.
Solubilities, notice of *Storer's* Dictionary of, v, 303, vi, 447, vii, 301.
Sombrero guano, *Julien*, vi, 424.

Sombrero guano, minerals of, *Julien*, xl, 367.
Sonder's Flora Capensis, i, 128, v, 444, xl, 125.
Sondhauss, C., influence of music on flame of coal gas, i, 416.
Sorel, prize to, viii, 301.
S. America, Agassiz expedition to, ix, 371, xl, 138.
explorations in, vii, 88.
S. Carolina, *Holbrook's* Ichthyology of, vii, 89.
Holmes's fossils of, iii, 298.
Spain, *Sullivan's* Geology of Santander in, viii, 119.
topographic survey of, iv, 361.
Spare's Differential Calculus, ix, 236.
Species, *Bree's* book on, i, 449.
DeCandolle on study of, v, 431.
Specimens, hardening of fragile or friable, viii, 300.
Spectra, by solution of nitrate of didymium, *Rood*, iv, 129.
Kirchhoff's memoir on, noticed, iv, 104, vi, 266.
photographs of, *Miller*, ii, 408, vi, 107, viii, 107.
projection of, iii, 414, iv, 407, xl, 243.
of alkaline metals, v, 414.
of carbon, vii, 408.
of chloro-chromic acid, viii, 109.
of elements, dark lines in, viii, 31.
of fixed stars, xl, 73.
of hyponitric acid, i, 415.
of lithium, iv, 407.
of nebulæ, x, 77, 133.
of osmium, vi, 267.
of phosphorus, iii, 414, vi, 267.
of sodium, v, 408, 414.
of sulphur, iii, 414.
of thallium, viii, 107.
solar, iv, 404, 406, v, 411, 413, vi, 266, viii, 415, 416.
stellar, *Rutherfurd*, v, 407, vi, 154.
Spectral analysis, iii, 414, iv, 403, v, 414.
by flint glass and bisulphid of carbon prisms, iv, 299, v, 356, 408.
lines, wave-lengths of, vii, 116, xl, 259.
observations, *Rutherfurd*, v, 71, 407.
see also LIGHT.
Spectroscope, *Airy's*, vi, 155.
Bunsen's, iii, 440.
Cooke's, iv, 299, vi, 266, xl, 305.
Donati's, vi, 154.
Gibbs's, v, 110.
Littrow's, v, 413.
Mousson's, ii, 105.
Rutherfurd's, v, 407, ix, 129.
Secchi's, vi, 156.
Speke, J. H., explorations of, iii, 259, vii, 75.
obituary, viii, 449.
Spencer, H., on Education, noticed, i, 304.
Sphagna of N. J., *Austin*, v, 252.
Spinal cord, microscopic anatomy of, ii, 302.
Sponge-spicules, *Julien*, xl, 379.
Spontaneous generation, *Fremy*, viii, 439.
Musset on, v, 270.
Nicklès, ix, 81.
Pasteur's researches on, i, 269, ii, 1.
Sprengel's blast for laboratory, ii, 425.
Squali, *Gill's* memoirs on, v, 299.
Squier's documents on discovery of America, i, 60.
tropical fibres, noticed, iii, 140.
Starch, amount of, in seeds, v, 123.
quantitative determination of, v, 116.
Star-fish, *A. Agassiz* on, noticed, xl, 129.
Stars and sun, photometrically compared, vi, 76.
binary, orbits of, *Kirkwood*, vii, 233.
double, *Mitchell*, vi, 38.
fixed, spectra of, xl, 73.
in northern hemisphere, ix, 112.
machine for cataloguing, viii, 166.
spectra of, v, 407, vi, 154.
variable, *Masterman*, vi, 144.
variably colored, distance of, xl, 190.
Algol, minima of, iv, 431.
η Argus, notes on, vii, 294.
Mira Ceti, brilliancy of, v, 150.
μ Herculis, *Clark*, v, 301.
ο Ceti, maxima of, iv, 431.
Stas, on relations of equivalents, i, 419.
Stebbins, 80 years progress of U. S., ii, 445.
Steetz, J., obituary, v, 449.
Stefan, interference in prismatic and diffraction spectra, ix, 218.
rotation of plane of polarization in quartz, ix, 347.
motive power of thermo-electric elements, xl, 259.
Stein's test for fusel oil, i, 114.
Stereographs drawn by hand, *Rood*, i, 71.
Stereoscope, experiments with, *Rood*, iv, 199.
lenticular, improved, *Emerson*, ii, 403.
perception of relief with, iv, 312.
distinguishes copies from fac similes, i, 110.
Steven, C. von, obituary, vii, 238.
Stevens, I. I., reply to, *Cooper*, i, 302.
obituary, iv, 305.
Stevens, M. C., elements of comet, II, 1861, ii, 266.
Stewart, sun spots, viii, 141.
Stieren, E., salt waters of Alleghany valley etc., iv, 46.
Stimpson, W., Conrad's Miocene shells, v, 428.
diatoms on deep sea bottoms, v, 454.
genus Diplothyra, v, 455.
glass coral of Japan, v, 458.
on a supposed minute Vertebrate lower jaw, vi, 299.
American Melanians, viii, 41.
classification of Brachyura, etc., noticed, v, 139.
Stohmann, urine of oxen, v, 291.
Stokes, long spectrum of electric light, vi, 108.
Stolba, estimation of sulphuric acid in salts of alkalies, vii, 122.
Storer, F. H., technical chemistry (notices and extracts), i, 115, 118, ii, 114, iii, 277.
on impurities of zinc, i, 142, ii, 380.
loss of light by glass shades, i, 284.
alloys of copper and zinc, i, 286, 423.
lead in silver coins, i, 430.
Keroselene, ii, 276.
American process of working platinum, iii, 124.

Storer, F. H., arsenic eating in Styria, iii, 126.
Dictionary of Solubilities, notice of, v, 303, vi, 447, vii, 301.
Strahl, classification of Brachyura, v, 139.
Strange, on aluminum-bronze, v, 286.
Streams, rising of, in Cal., *Gibbons*, viii, 187.
Stretch, R. H., shooting stars, Nov. 1864, ix, 229.
appointed geologist of Nevada, xl, 273.
Striæ of diatoms, *Sullivant* and *Wormley*, i, 12.
Stromeyer, on szaibelyite, vii, 271.
Strontia distinguished from lime, i, 113.
Strontium in meteorite, iv, 407.
Struve, F. G. W., obituary, ix, 114, xl, 145.
Strychnine and curare, effects of, ii, 98.
Suez, cutting of isthmus of, viii, 300, ix, 85.
Sullivan's Geol. of Santander, viii, 119.
Sullivant, W. S., Nobert's test-plate, i, 12.
Musci Cubenses, by, iii, 141.
Icones Muscorum, by, viii, 291, 429.
Sulphate of baryta, solubility of, ix, 90.
of copper, a preservative of wood, ii, 274.
of lime soluble in chlorhydric acid, *Johnson*, v, 283.
Sulphids of alcohol radicals, iv, 133.
of hydrogen, reaction with, xl, 338.
of potassium on bromid of ethylene, vii, 390.
of thallium, crystalline, vii, 117.
Sulphocyanid of ammonia in photography, vi, 417.
Sulphur compounds, new, *Oefele*, viii, 265.
of uranium, ix, 344.
crystallization of, *Wetherill*, xl, 338.
cyanid of, iii, 271.
on solutions of metals, iii, 328.
spectrum of, iii, 414.
Sulphuric acid, arsenic in, v, 116.
estimation of, vii, 122.
manufacture, vi, 269.
on hippuric acid, *Maier*, ix, 208.
reduced by nascent hydrogen, ii, 412.
sulphate of baryta soluble in, ix, 90.
Sun and stars photometrically compared, *Clark*, vi, 76.
autographs of, iv, 436.
constitution of, *Magnus*, viii, 106.
distance of, vi, 161, vii, 409.
intensity of action of different parts of disk of, ix, 83.
measure of heat of, *Mayer*, vi, 264.
origin of heat of, *Mayer*, viii, 187.
rotation of, magnetic period depending on, viii, 420.
spots of, viii, 141, 142, 420.
surface of, *Dawes*, viii, 203.
Nasmyth on, iv, 437.
see also, *Solar*.
Sûrya-Siddhânta, trans. of, i, 298.
Switzerland, lake-habitations in, iv, 161, xl, 135.

T

Taconic system, see GEOLOGY.
Tantalum and columbium compounds, *Rose*, viii, 321.
Tar as a preservative, *Kuhlmann*, vi, 406.
dyes from, *Perkin*, ii, 267, 416.
Tatnall's catalogue of plants of Newcastle Co., Del., i, 130.
Taurus, second nebula in, v, 108.
Taylor, W. J., obituary, vii, 447.
Telegraph, army, *Nicklès*, iii, 119.
Atlantic and Pacific, ii, 454.
Telegraph cable, difficulties in laying, vii, 440.
physiol. effects, *Nicklès*, iii, 119.
submarine, *Nicklès*, iii, 118.
Télégraphie Electrique, *Breguet*, noticed, v, 269.
Tempel, discovers comet, Oct. 1860, i, 136.
comet, I, 1862, iv, 430.
comet IV, 1863, vii, 292.
Terpsichore (81), ix, 111.
Temperature in temperate zone, *Dennis*, v, 44.
observations, method of reducing, *Everett*, v, 17, vi, 173.
remarks on Everett's article, *Loomis*, v, 31.
of Atlantic, *Poey*, iii, 268.
of sexes, viii, 448.
Tennessee, Cretaceous and superior formations of, *Safford*, vii, 360.
geol. survey, i, 294.
upper Silurian, *Roemer* on, i, 127, 205.
Tenore, M., obituary, *Gray*, iii, 427.
Terbium, *Popp* on, viii, 418.
absorption spectrum of, xl, 260.
Tertiary, see GEOLOGY.
Texas geol. survey, i, 124, 127, 294, 460.
primordial fossils of, ii, 213.
rocks of, Marcou on, *Meek*, ii, 278.
Thallic alcohols, ix, 220.
Thallium, *Crookes*, ii, 411, iv, 409, v, 273, viii, 266; *Johnson*, vii, 121; *Lamy*, iv, 275, v, 273.
conductibility and heat of, vi, 113.
in furnace products, *Roepper*, v, 420.
in certain micas, viii, 420.
spectrum of, viii, 107.
sulphate of, vii, 117.
Thermo-electric batteries, *Bunsen*, ix, 219.
Marcus on, xl, 157.
currents in circuits of one metal, iv, 435.
elements, motive power of, xl, 259.
Thomson, W., medal to, viii, 144.
Thorium, atomic weight of, viii, 417.
Thury, production of sexes, viii, 132, ix, 84.
criticised, *Coste*, xl, 139.
Thwaite's Ceylon Plants, iii, 432, xl, 125.
Tidal wave, *Mayer*, viii, 397.
Tides, aerial, *Chase*, viii, 226.
theory of, *Dennis*, vii, 234.
Time boundaries in geol. history, *Dana*, vi, 227.
Tissier's process for iron, i, 120.
Titanium in iron, vii, 126.
Tolles, R. B., binocular microscopes, viii, 111, ix, 212.
orthoscopic eye piece by, i, 112.
Torrell's Arctic Expedition, iii, 265.
Torrey, J., octahedral galena, v, 126.
Townsend, J. B., on a large mass of native copper, vii, 431.

Transit-observation, error of, ix, 112.
Trapp, on veratrin, vi, 268.
Treadwell, *D.*, prize to, xl, 288.
Triassic, see GEOLOGY.
Triethylamine, i, 422; *Lea*, iv, 66.
Trigonometer, *Lyman's*, iv, 157.
Trimorphism in plants, ix, 360.
Tristan, Marquis de, obituary, iii, 428.
Troost, vapor-densities, vi, 408.
permeability of iron, vii, 441.
on zirconium, xl, 261.
Trouvelot, new American silkworm, ix, 228.
Trowbridge, *D.*, invisibility of nebulous matter, vii, 210.
nebular hypothesis, viii, 344, ix, 25, 113, 363.
Trübner's American and Oriental Record, notice of, ix, 375.
Tryon, *G. W.*, announcement of American Journal of Conchology, ix, 116.
monograph of Pholadacea, &c., noticed, v, 297.
Tubularia not parthenogenous, *Clark*, vii, 61.
Tuckerman's Lichenes Cubæ, vii, 436.
Tucson meteoric iron, *Brush*, vi, 152.
Tungstates, *Marignac* on, vi, 113.
Tungsten, alloys of, vii, 118.
Tunnel of Mt. Cenis, ii, 101, iii, 439, xl, 138.
Tunner, on Bessemer's process, v, 421.
Berg- und hüttenmännisches Jahrbuch, noticed, vi, 273.
Turpentine, oil of, adulteration with, ix, 273.
polarization of, *Mahla*, ii, 107.
Tuttle, *H. P.*, discovers asteroids, (66) i, 463, (73) iii, 436.
comet III, 1861, iii, 289.
on Tempel's comet, viii, 432.
Tweedie, J., obituary, v, 449.
Twining, *A. C.*, meteors, Nov. 1860, i, 138; Nov. 1861, iii, 146; Aug. 1862, iv, 295; Nov. 1862, v, 146; Nov. 1863, vii, 145; Nov. 1864, ix, 229; Aug. 1865, xl, 284.
periodic meteors, ii, 444, v, 149, vii, 445.
meteoric rings affected by earth, iii, 244.
Aurora, Aug. 1865, xl, 285.
Twining, *K.*, ascent of Monte Rosa, iii, 442.
Tyler, *W. S.*, spartaite, ix, 174.
syhedrite, xl, 111.
Tyndall, on radiation through atmosphere, vi, 99.
on absorption and radiation of heat, noticed, ii, 106.
on Heat as a mode of Motion, noticed, vi, 310.
Tyrian purple from coal-tar, *Perkin*, ii, 268.

U

Unger, on geology of Greece, etc., vii, 79.
Unionidæ, *Lea* on, noticed, iv, 451, v, 143, vi, 139, vii, 436.
U. S. Army, medical statistics, i, 60.
Coast Survey, Report, v, 239, vii, 95, ix, 115.
U. S. government surveys, *Hayden*, iv, 98.
Nat. Hist. contrib., noticed, i, 295.
Nav. Observatory, ii, 148.
Gilliss's observations at, v, 146.
Stebbins's eighty years progress of, noticed, ii, 455.
Upper Missouri explorations, i, 229, iii, 452, iv, 100, xl, 271.
Urals, exploration of, xl, 288.
Uranium, carbonate of sesquioxyd of, iv, 321.
separation of, ix, 64.
sulphur compounds of, *Remelè*, ix, 344.
Ure's Dictionary, Supplement, noticed, vi, 311.
Urea, from ferrocyanid of potassium, *Lea*, ii, 179.
Urine of oxen in relation to food, v, 291.
Uslar, on separating alkaloids, iii, 415.
Utah, wagon-road routes in, iv, 99.

V

Valenciennes, obituary, xl, 140.
Van Beneden, Belgian bone cave, ix, 223, xl, 136.
crustacea of Belgium, noticed, viii, 295.
Van den Bosch, R. B., obituary, iii, 428.
Van Hemel, *J. A.*, Indians of Hayti, v, 171.
Vapor-densities, *Playfair* and *Wanklyn*, iii, 413.
Deville, vi, 408, ix, 346.
Vapperau, L'année littéraire et dramatique, i, 155.
Variable stars, *Masterman*, vi, 144.
Varieties in plants, origin of, *Decaisne*, vi, 432.
Vegetable ivory, vii, 445.
Vegetation affected by ozone, etc., *Lea*, vii, 373.
Venezuela, coal in, viii, 288.
Ventilation at Key West, *Hunt*, v, 394.
Venus, light of, compared with moon, xl, 287.
Veratrin, *Trapp* on, vi, 268.
Verdet, lectures by, noticed, vi, 407.
Vermont, Geol. report, iii, 416, iv, 135, v, 430.
red sandrock of, age of, ii, 232, 454, iii, 100, 106, 370, 421.
see also GEOLOGY, *Taconic system*.
Verrill, *A. E.*, new developing solution, ix, 221.
preservation of starfishes, ix, 228.
new American silkworm, ix, 228.
Putnam's Directory, ix, 374.
classification of Polyps, xl, 127.
List of Polyps and Corals, etc., by, notice of, vii, 437.
Polyps of eastern coast of U. S., noticed, viii, 450.
Vibrating water-falls, *Loomis*, vi, 352; *Nickerson*, ix, 151.
Vickers, *H. T.*, mounting insects for microscope, vi, 157.
Vilmorin, L. de, obituary, i, 461.
Vilmorin-Andrieux, Des fleurs de pleine terre, vii, 435.
Vinegar manufacture, *Wetherill* on, i, 450.

Violine from coal-tar, *Perkin*, ii, 270.
Virginia, Appalachian region of, iv, 413.
creeper, tendrils of, *Gray*, v, 445, vi, 130.
sandhills of, *Latrobe*, xl, 261.
Vogel, *Heuglin's* search for, i, 59.
Voit, on excretion of nitrogen from animals, vi, 271.
Volatile hydrocarbons, *Warren*, xl, 89, 216, 384.
substances, distillation of, vii, 377.
Volcanic island in the Caspian, viii, 118.
upheaval of sea, Sandwich Is., i, 301.
Volcanoes, in California and Oregon, xl, 264.
of Candarave, ascent of, iv, 300.
of Cotopaxi and Arequipa, slopes of, *Dana*, viii, 427.
of Etna, eruption of *Fouqué*, xl, 122.
of Kilauea, *Coan*, v, 296, vii, 415, xl, 122.
of Kurile Is., etc., *Perrey* on, xl, 272.
submarine, in Mediterranean, vii, 442.
of Vesuvius, eruption of, iv, 439.
Von Helmersen, explorations of, xl, 288.

W

Wagner, A., Jurassic feathered reptiles, v, 129.
Wagner, N., on larve-budding, ix, 110, 362.
Wagner, R., brain in man and monkeys, bearing upon classification, iv, 188.
obituary of, viii, 149.
Waitz's Anthropology, vii, 149.
Waldak, on redevelopers, vi, 418.
Walker, W. J., obituary, ix, 374.
prizes of Bost. Soc. Nat. Hist., founded by, xl, 137.
Wallich, sponge secretions in Rhizopods, viii, 131.
Walling, H. F., gravitation, xl, 254.
Walpers's Ann. Botan., by *Müller*, iii, 140, xl, 126.
Walsh, B. D., gradation from individuals to species in insects, xl, 282.
on Dimorphism in Cynips, noticed, viii, 130.
Wanklyn, hydrogen and iron, iii, 272.
density of vapors, iii, 413, vi, 408.
Ward, H. A., geol. museum of, iii, 449.
Megatherium Cuvieri, noticed, viii, 295.
casts of fossils by, ix, 224.
Warner's earthwork, theorems, etc., noticed, iii, 304.
Warren, C. M., safety lamp for laboratory, iii, 275.
progess of organic analysis, viii, 387.
process of fractional condensation, ix, 327.
volatile hydrocarbons, xl, 89, 216, 384.
Warren, S. E., Descriptive Geom., noticed, i, 148.
elementary Geom. drawing, noticed, iii, 303.
Wasium, vii, 116, viii, 419.
Water, climate near, ix, 372.
in Paris, vii, 443.
periodic action of, *Nickerson*, ix, 151.
Water-falls, vibrating, *Loomis*, vi, 352.
Water-falls, vibrating, *Nickerson*, ix, 151.
Waterglass, *Ordway*, ii, 153, 337, iii, 27, v, 185, xl, 173.
Water moonrise, *Hunt*, v, 395.
Waters, hot, lithium and cæsium in, viii, 447.
mineral, *Scoutetten* on, xl, 288.
concentration of, vi, 404.
of Bath, etc., *Lyell*, ix, 13.
natural, chemistry of, *Hunt*, ix, 176, xl, 43, 193.
Watson, J. C., corrections of elements of a comet, v, 218.
Eurynome, vii, 140.
comet VI, 1863, vii, 293.
discovery of new planet, xl, 435.
Waves, earthquake, at Sand'ch Ids., i, 301.
Wax of Myrica cerifera, chemical constitution of, *Moore*, iii, 313.
Webster's process for oxygen, v, 283.
Weddell, sur le Cynomorium coccineum, iii, 139.
Chloris Andina, noticed, iv, 150.
Weevils, method of destroying, viii, 446.
Wehrauhe, cyanid of phosphorus, vii, 269.
Weidemeyer's N. A. Butterflies, viii, 135.
Weights, metric system, v, 302.
Brit. Assoc. on, viii, 446.
Weiss, spectrum of hyponitric acid, i, 415.
on solar spectrum, iv, 406.
Wells's summary of Med. Science, ii, 303.
Welwitschia, *Hooker*, vi, 434, xl, 273.
Wenderoth, G. W. F., obituary, iii, 428.
Wenham's binocular microscope, i, 110, viii, 111.
Werther, Reinsch's test for arsenic, ii, 277.
Wetherill, C. M., experiments with ammonium amalgam, xl, 160.
crystallization of sulphur, etc., xl, 338.
on manufacture of vinegar, noticed, i, 450.
Weyl, on carbon in iron, iii, 273.
Wharton, J., distance of variably colored stars, xl, 190.
Wheatley, C. M., Mesozoic red sandstone of Atlantic slope, bone bed in, i, 301, ii, 41.
Wheeler's quartz operators' hand-book, xl, 290.
Whelpley, J. D., treatment of gold and other metals, vii, 401.
White, C. A., rocks of Mississippi valley and new fossils from Burlington, Iowa, iii, 422.
White, M. C., improvements in microscope, i, 110.
spontaneous generation, Pasteur's researches, ii, 1.
diffraction in microscopic vision, iii, 377.
microscopic organisms in hornstone, iii, 385.
White river basin, v, 225.
Whitfield, R. P., note on Lingula polita, iv, 136.
on rocks of Mississippi valley, etc., noticed, iii, 422.
Whitney, J. D., height of Mt. Shasta, etc., vi, 123, vii, 81.
on results of geol. survey of Cal., viii, 256, 298.

Whitney, J. D., explorations of Sierra Nevada, 1864, ix, 10.
on Upper Mississippi lead region, noticed, iii, 453.
geol. survey Reports, noticed, i, 124, iv, 157, vi, 118, vii, 82, 427, ix, 99, xl, 141.
analyses of pyroschists, noticed, v, 160.
Wichmann, on oxyd of lead free from copper and iron, i, 116.
Wicke, on estimation of lime, v, 116.
Wiedemann's Galvanism, etc., ii, 110.
Wiederhold, on arseniuret of hydrogen, vii, 117.
Wiener, on atomic constitution of liquids, vi, 409.
Wilcocks, on ether in the solar system, notice of, ix, 114.
Wild's saccharimeter, ix, 91.
Will, croconic and rhodizonic acids, iii, 274.
Williams, C. P., copper range of Lake Superior, iv, 112.
Williams, S. W., caves and coal near Peking, viii, 119.
Wilson, T. B., obituary, ix, 373.
Winchell, A., rocks and new cephalopods of Mich., iii, 352.
saliferous rocks and salt springs of Mich., iv, 307.
Catskill and Chemung groups, v, 61.
fossils of Potsdam and Lake Superior sandstones, vii, 226.
mastodon in Mich, viii, 223.
currant worm, viii, 291.
origin of prairies, viii, 332, 444.
oil-formation in Mich., etc., ix, 350.
drift materials in Mich., xl, 331.
Winds, causes of, *Ferrel*, i, 27.
Wine, changes in, *Nicklès*, v, 250.
Winkler, on cobaltic acid, viii, 266.
Winslow, C. F., notices of earthquakes, xl, 364.
Wisconsin geol. survey, by *Hall*, ii, 454, iii, 420, 453.
Hale's flora of, i, 130.
Potsdam, trilobites of, i, 294, ii, 149.
Waukesha limestone of, iv, 136.
Wislizenus, A., earthquakes of Aug. 1865, xl, 362.
Wittstein, on estimation of arsenic, vi, 269.
Wöhler, on compounds of silicium, vii, 120.
Wolf, spectra of metals, v, 414.
Wood, preservation of, ii, 274, v, 267, viii, 299.
Wood, A., class book of Botany, ii, 127.
Wood, B., new fusible alloy, iii, 276.
Woodward, G. E., & F. W., Country Homes, noticed, ix, 375.
Woodward, H., Archæopteryx, v, 131.
Woodward, S. P., obituary, xl, 288.
Wormley, T. G., Nobert's test-plate, etc., i, 12.
Worthen, A. H., Goniatite limestone, Rockford, Ind., ii, 167, 288.
Leclare limestone and Onondaga salt group of Iowa report, iii, 46.
Ill. geol. report, noticed, i, 125, ix, 358.
Wright, C., Musci Cubenses, i, 141.
Writing on paper, process for recovering, viii, 299.
Wurtz, oxyd of ethylene, i, 277, iv, 130.
on new modes of forming hydrocarbons, iv, 131.
on oxyethylene bases, v, 114.
Wyman, J., Infusoria in organic solutions, iv, 79.
Mitchill and Morehouse on respiration of Chelonia, vi, 141.
review of monograph of Aye-Aye, vi, 294.
on Development of Raia Batis, noticed, viii, 129.

X

Xylobius, vi, 431.

Y

Yale Scientific School, contributions, i, 281, iii, 313, iv, 243, 367, 402, v, 94, vii, 67, 344, ix, 132.
Yazoo river basin, v, 232.
Yellow fever, *Hunt*, v, 395.
Youmans's Correlation, &c., notice of, ix, 220.
Yoruba explorations, iv, 93.
Yuba, deep placers of, *Silliman*, xl, 1.
Yttria, *Popp*, viii, 418.

Z

Zeller's Année Historique, iv, 128.
Zinc, alloys of, i, 286, 423.
ammonia-picrate of, i, 82.
dimorphism of, i, 191.
impurities of, i, 142, ii, 380.
of Australia, i, 371, viii, 277.
separation of, from manganese, etc., ix, 60.
Zirconium, *Troost* on, xl, 261.
Zodiacal light, *Challis*, iv, 435.
Masterman, vi, 143.
at Key West, *Hunt*, v, 388.
ZOOLOGICAL WORKS:
Agassiz, A., Tentacles of Medusæ, v, 300.
Annelids, etc., v, 300.
Embryology of Echinoderms, viii, 130.
star-fish, xl, 120.
Agassiz, L., contrib. to U. S. Nat. Hist., i, 295.
Allen, Monograph of Bats, ix, 116.
Amer. Jour. of Conchology, ix, 116, 375, xl, 143.
Baird, Review of Amer. Birds, viii, 303, 431, ix, 115, xl, 142.
Bates, Mimetic analogy in Lepidoptera, vi, 285.
Cajetan & Feldersen, Voyage of Novara, xl, 139.
Clark, Prodromus of Lucernaria, v, 459.
Coues, ornithology of Labrador, iii, 298.
Cresson, Hymenoptera, viii, 294, ix, 363.
Dujardin & Hussé, Zoophytes Echinodermes, iv, 151.
Elliott, Tetraoninæ, vii, 437.

ZOOLOGICAL WORKS—
Gill, Memoirs on Squali, v, 299.
Harris, Insects injurious to vegetation, iii, 434.
Holbrook, Ichthyology, vii, 89.
Huxley, Man's place in nature, v, 451.
Jan, Prodromus of the Ophidia, v, 455.
Lea, Unionidæ, iv, 451, v, 143, vi, 139, vii, 436.
Lyman, Ophiuridæ, etc., xl, 283.
Mitchill and *Morehouse*, respiration of Chelonia, vi, 141.
Morse, Mollusca Pulmonifera of Maine, viii, 303.
Classification of Mollusca, xl, 393.
Owen, monograph of the Aye-Aye, vi, 294.
Packard, U. S. Bombycidæ, viii, 431, ix, 363.
Phillips, Life on the Earth, i, 444.
Tryon, contributions to conchology, v, 297.
Van Beneden, Belgian Crustacea, viii, 295.
Verrill, Polyps and Corals of Mus. Comp. Zool. Cambridge, vii, 437.
Polyps of U. S. coast, viii, 450.
Walsh, dimorphism in Cynips, viii, 130.
Weidemeyer, Catalogue of Butterflies, viii, 135.
Wyman, Development of Raia Batis, viii, 129.
ZOOLOGY—
Actæonidæ, *Meek*, v, 84.
Actinophrys Eichornii, *Clark*, viii, 331.
Alca impennis, *Owen*, viii, 431.
Amber-fauna, diptera of, vii, 305.
Amphibians, position of, among Vertebrates, *Dana*, vii, 184.
Animalcules in the blood, viii, 293.
Animals, distinction of, from plants, *Dana*, vi, 351.
Annelids, fission in, *Minor*, v, 35.
fossil, *Marsh*, viii, 415.
Aviculidæ, *Meek*, vii, 212.
Bipaliura, i, 134.
Brachyura, etc., classification of, v, 139.
Brain of man and monkeys, iv, 188, 440.
Cambridge museum of Comparative Zoology, i, 135, ii, 438, viii, 128.
illustrated catalogue of, xl, 283.
Carnivores, relations of, to Herbivores, vii, 159.
Cephalization in, *Dana*, v, 65, vi, 1, 159, 321, 440, vii, 10, 157.
Cetaceans, relations of, to Herbivores, vii, 161.
Cicada, seventeen-year, New Haven Co., 1860, iii, 433.
ZOOLOGY—
Crustaceans and Insecteans, homologies of, *Dana*, vi, 6, 159, 233.
Cephalization in, *Dana*, v, 65, vi, 335.
classification of, *Dana*, vi, 7, 9, 344.
marine, in freshwater lakes of Norway, viii, 293.
Cryptochiton Stelleri, viii, 185, 431.
Currant-worm, *Winchell*, viii, 291.
Diatoms on deep sea-bottoms, v, 454.
striæ of, i, 12.
Didunculus, viii, 294.
Diplothyra, genus, *Stimpson*, v, 455.
Eozoön Canadense, xl, 344.
Glass coral of Japan, v, 458.
Gorilla, *Owen* on, ii, 435, iv, 440.
Sanford on, iii, 48.
casts of, viii, 292.
height of, *Gray*, ii, 437.
Herbivores, classification of, *Dana*, vii, 159.
Insect larves, budding in, ix, 110, 362.
Insects, classification of, *Dana*, vii, 10.
gradation from indiv. to species, xl, 282.
Lucernaria, *Clark*, v, 346.
Man, remains of, see MAN.
Melanians, *Stimpson*, viii, 41.
Megasthenes and Microsthenes, v, 70, vi, 8, 342.
Muscovy duck, viii, 294.
Peasia, genus, i, 134.
Pleurosigma angulatum, marks on, *Rood*, ii, 335.
Polyps, classification of, *Verrill*, xl, 127.
Protozoans, oceanic, related to sponges, *Dana*, v, 386.
Pteriidæ, *Meek*, vii, 212.
Rhizopods of the Azoic, or Laurentian, vii, 272, 431, xl, 344, 391.
sponge secretions in, viii, 131.
Sexes in, production of, viii, 132, ix, 84, xl, 139.
Silkworm, new American, *Verrill*, ix, 228.
in France, ii, 102, iv, 123, viii, 299.
Starfishes, preservation of, with natural colors, *Verrill*, ix, 228.
Tomopteris, a new species of, *Minor*, iv, 429.
Tubularia, *Clark*, vii, 61.
Vertebræ, cephalic, *Lavocat*, viii, 293.
Vertebrate lower jaw, on supposed, *Stimpson*, vi, 299.
Vertebrates, relations of classes of, *Dana*, vi, 315.
See further, ACCLIMATION, GEOLOGY.

GENERAL INDEX

or

VOLS. XLI—L, SECOND SERIES.

A

Abbe, C., connection between terrestrial temperature and solar spots, l, 345.
Repsold Circle, iii, 207, 309.
Abel, F. A., gun-cotton, iv, 288.
Academy, American, Proceedings, iii, 140; iv, 296; v, 428.
memoirs, v, 428.
medal, ii, 136.
notice of, Bentham, iv, 302.
California, Proceedings, iii, 424; v, 144; l, 296.
memoirs, v, 267.
Chicago, museum burned, ii, 135.
notice of, i, 281.
proceedings, ii, 140.
transactions, v. 418, 427; ix, 285.
National, i, 141, 430;
annual of, iv, 295.
meetings, ii, 431; iii, 419; iv, 435; v, 280; vi, 428; ix, 439.
memoirs, ii, 287; iii, 140.
Philadelphia, proceedings, i, 144, 431; ii, 140, 292; iii, 140, 423; iv, 296; v, 144, 428; vi, 152; vii, 152; viii, 298, 451; ix, 444; l, 296, 440.
Paris, new members, ix, 284.
St. Louis, Transactions, ii, 140; vi, 288.
Academy, a new monthly, viii, 452.
Acclimatization of ostrich, i, 109; v, 72.
of the salmon, i, 109.
in Australia, iii, 97.
Acetyl compounds of carbohydrates, *Schützenberger* and *Naudin*, viii, 414.
Acetylene, polymers of, *Berthelot*, iii, 389.
Acids, aromatic, synthesis of, *Wurtz*, l, 115.
new mixed, *Gal*, iv, 104.
normal and derived, *Barker*, iv. 384.
of the lactic series, *Frankland* and *Duppa*, iv, 268.
Acids, organic. synthesis of, *Carius*, iv, 265.
Adam, Tableau mineralogique, ix, 119.
Adams, J. H., minerals at Pelham, ix, 271.
Adhesion of vapor, *Gibbs*, iv, 101.
Æpyornis of Madagascar, ix, 275.
Aerolites, see *Meteorites*.
Africa, journey into, *Du Chaillu*, i, 281.
telegraph by sound, i, 140.
African explorations, Livingston's, ix, 14.
Agassiz, A., on Acalephæ, noticed, i, 431; ii, 132.
notice of Edwards's Oiseaux fossiles de la France, vii, 276.
Embryology of Starfishes, ii, 134.
young stages of Annelids, ii, 427.
Agassiz's Geological Sketches, noticed, i, 407.
Journey in Brazil, noticed, v, 288.
Agricultural chart by Delesse, i, 429.
Agriculture, Report of Commissioner of, 1864, i, 430.
Ainos of Yesso, *Bickmore*, v, 353.
of Saghalien and Kurile Islands, v, 361.
Air-rings, visible, *Ball*, vi, 260.
Albertite, origin of, *Peckham*, viii, 362.
Alcohol from castor oil, vii, 426.
normal amylic, l, 416.
iso-butyl, conversion of, into tertiary pseudo-butyl alcohol, l, 114.
octylic, new source of, vii, 425.
tritylic, by fermentation, vii, 426.
Alcohols, and chlorinated ethers, iii, 249.
action of on terchlorid of phosphorus. iii. 389.
Aldehyd methylic, *Hoffman*, v, 249.
Alexander, W. D., crater of Haleakala, ix, 43.
Algæ in hot springs, vi, 131.
in N. Atlantic ocean, *Dickie*, l, 428.

Alkalies, test for, v, 255.
Alkaloid. on a new, *Rosenstiehl*, viii, 123.
Allen, *H.*, Comparative Anatomy and Medical Zoology by, noticed, vii, 149.
Allen, *J. A.*, Catalogue of Massachusetts Reptiles and Batrachians by, noticed, vii, 285.
Eared Seals, noticed, l, 431.
Mammals of Massachusetts, ix, 134.
Alloys, Japanese, *Pumpelly*, ii, 43.
Almanac, Amer. Nautical for 1869, v, 284.
Altitudes in British America, iv, 115.
of Mount Hood, iv, 429.
of Mount Washington, iv, 377.
Amalgams, *Nicklès*, iii, 96.
America, Rocks of, *Catlin*, l, 135.
American Association Adv. Sci., meeting of, ii, 287; iv, 137, 431; viii, 146, 289; l, 150, 286.
Proceedings, 1866, v, 144; 1866, vi, 151; 1867, vi, 287; 1868, vi, 148, 275.
Chemist, noticed, l, 295.
Entomologist, noticed, l, 282.
Naturalist, iii, 136, 284; iv, 139; vi, 286.
Philosophical Soc., Philad., Proceedings, iii, 140, 424; vii, 296; ix, 288.
Transactions, i, 144.
Ammonia, nitrite of, *Loew*, vi, 29.
Ammonia-chromium bases, *Cleve*, ix, 251
Ammonium-amalgam, *Pfeil* and *Leffman*, ii, 72.
composition of, vii, 420.
Amyl, arsenate of, l, 14.
arsenite of, l, 20.
Amylene, relation of oil of turpentine to, *Bauer* and *Verson*, viii, 416.
Analyses of shells, *How*, i, 379.
Analysis for chlorine, *Warren*, ii, 156.
new method of volumetric, *Gibbs*, iv, 207.
of petroleum, apparatus for, *Peckham*, iv, 230.
organic, determination of oxygen in, v, 255.
chemical, repetition in, *Godwin*, l, 249.
spectroscopic, see *Spectroscope*.
use of sand and glass filters in quantitative. *Gibbs*, iv, 215.
Will's tables for Quantitative, noticed, iv, 140.
Analytical processes, new, *Talbott*, l, 244.
Andes and the Amazon, by Orton, noticed, l, 294.
of Quito, phys. geog. of, v, 99.
of Equador, geology of, *Orton*, vii, 242.
observations on, *Orton*, vi, 203.
Andrews, *E.*, glacial drift of Illinois, iii, 75.
note on, *Hilgard*, iii, 241.
Andrews, *E.*, Human Antiquities at Abbeville, etc., v, 180.
Lakes of N. America as chronometers, l, 264, 424.
on western Boulder drift, viii, 172.
Andrews, *E. B.*, Geological relations of petroleum, ii, 33.
Angström. on violet spectrum, v, 250.
Aniline, *Reimann*, ix. 142.
Animals, commensalism among, l, 285.
Annual of Scientific Discovery, vii, 434.
Annulata, on recent works on, viii, 199.
Ansted's Physical Geography, v, 143.
Anthony, *W. A.*, bones of rattlesnakes, ii, 285.
Antimonous sulphid, preparation of, *Sharples*, l, 248.
Antimony, detonating, i, 107.
sulphates of oxyd of, *Dexter*, vi, 78.
Antozone, Meissner on, l, 213.
Apparatus for studying absorption, l, 52.
Appleton's Amer. Cyclopedia, ii, 138; iv, 140; vi. 432.
Aquitanian remains, *Lartet*, noticed, ii, 291.
Aral Sea, changes in, *Rawlinson*, iv, 133.
Archæology of Southern France, Lartet and Christy on, noticed, iv, 119.
prehistoric in Greece, *Finlay*, l, 251.
Arctic researches, recent, *Gilman*, vii, 103, 377.
Arents, *A.*, partzite, iii, 362.
Arithmetic, Eaton's, noticed, iv, 140.
Arizona, *B. Silliman*, i, 289.
Arnott, G. A. W., obituary, vi, 273.
Gray, vii, 240.
Arsenic, allotropic, v, 254.
and arsenous acid ethers, *Crafts*, l, 10.
nitrate of silver test for, vii, 255.
Artemia, new localities of, *Verrill*, viii, 430.
Artesian water, Charleston, S. C., vii, 357.
well of Terre Haute, Ind., viii, 270.
Assmuss on products of distillation, *Ordway*, v, 274.
Association, see *American* and *British*.
Asphalt, vein in Virginia, i, 120.
Aspirator, form of, *Leeds*, v, 423.
Asteroid (85), elements of, *Peters*, i, 277.
(86), Semele, elements, ii, 134.
(87), ii. 135.
(90), Antiope, iii, 279.
(91), iii, 279.
(91), Ægina, vi, 147.
(93), Minerva, vi, 147.
(94), Aurora, vi, 147.
(95), Arethusa, vi, 147.
(96), vi, 147.
(97), Clotho, vi, 147.
(98), vi, 274.
(99), vi, 274.
(100), Hecate, vi, 393.
(101), Helena, vi, 274, 393.

Asteroid (102), Miriam, vi, 275, 392, 393.
(103), vi, 392, 393.
(104), vi, 392, 393.
(105), vi, 392, 393.
(106), vi, 393.
(109), elements of, *Rogers*, ix, 141, 428; *Peters*, ix, 277.
(111), l, 285, 432.
(112), Iphigenia, l, 409.
Astro-meteorology, recent contributions to, *Newton*, iii, 285.
Astronomical observations, *Gilliss*, 1864, iii, 413.
Observatory, Russian, Director of, ii, 286.
of Harvard College, Annals of, noticed, iv, 293.
Society, abstracts of Reports of, ix, 431.
Astronomy, Chambers's, noticed, iii, 422.
Kirkwood's Meteoric, noticed, iv, 428.
Lockyer's. noticed, vi, 275.
Norton's, noticed, iv, 295
Snell's Olmsted's, noticed, ii, 139.
Watson's, noticed, *Newton*, vi, 145.
see further, *Star*.
Astro-photometer, *Zollner* on, ii, 418.
Athyris, subdivisions of, *Billings*, iv, 48.
Atlantic Telegraph. Fields's history of, ii, 437.
Atmospheric system as God made it, by Butler, noticed. l, 150.
Atomic ratio, *Cooke*, vii, 386.
weights, determination of by optical means, *Schrauf*, iv, 113.
volumes of elements, *Clarke*, vii, 180, 308.
solid compounds. *Clarke*, l, 174.
Atomicities, theory of, *Gibbs*, iv, 409.
Atoms, chemical, existence of. *Kekulé*, iv, 270.
size of, *Thomson*, l, 38.
Atwater, W. O., on American maize, viii, 352.
Audubon, life of, noticed, ix, 443.
Aureole observed in solar eclipse, viii, 434.
Auroral appearances connected with phenomena of terrestrial magnetism, *Stewart*, ix, 281.
displays, recent, *Newton*, l, 146.
Aurora at Toronto, *Kingston*, viii, 65.
Bandelier, iii, 279.
magnetic effects of, *Farmer*, i, 118.
of April, 1869, *Gilman*, viii, 114.
of April 15, 1869, viii, 146.
spectrum of, viii, 404.
Auroras and Sun-spots compared with magnetic declination, *Loomis*, l, 153.
Sept., 1868, in Maine, *Gilman*, vi, 390.
Australia, diamonds in, ix, 275.
Dinornis in, ix, 273.
Australia, gigantic marsupials of, i, 258.
Lias and oolite of, *Moore*, l. 269.
Smyth's gold-fields of Victoria, ix, 263.
tall trees in, iv, 422.
Victoria, mineralogy of, *Ulrich*, noticed, l, 271.
works on Botany of, noticed, i, 415.
Avery, C. E., test for arsenic, vii, 255.

B

Babinet, undulatory theory of heat, iv, 111.
Babington, revision of flora of Iceland, l, 277.
Bache, A. D., magnetic observations in Maine, ii, 141.
obituary of, iii, 282.
Bahr, on yttria and erbia, i, 399.
Baillon's Histoire des Plantes, noticed, l, 276.
Baird, S. F., distribution and migration of North American birds, i, 78, 184, 337.
Baird's American Birds, noticed, ii. 134,
Baker, J. G., Flora Brasiliensis, Martius, noticed, l, 425.
genera, etc., of herbaceous liliaceæ, l, 427.
Ball, R., air-rings, vi, 260.
Bandelier, A. F., aurora, iii, 279.
Barker, G. F., chemical abstracts, v, 251; vi, 129; vii, 420; viii, 123, 408; l, 111, 255.
formic vs. carbonous acid, iv, 263.
normal and derived acids, iv, 384.
notices in physiological chemistry, vi, 233, 379; vii, 20, 258, 393; viii, 49.
Roscoe's Chemistry, iii, 137.
Frankland's Chemistry, noticed by, iii, 137.
silvering on glass, iii, 252.
abstract of Meissner's research on electrized oxygen, l, 213.
Barium chlorate, *Brandau*, l. 111.
Barometer, automatic, *Hough*, i, 43.
Barometric pressure, distribution of, ix, 440.
Barnard, F. A. P., Industrial Machinery and Scientific Apparatus by, noticed, viii, 297.
Machinery of Industrial Arts, etc., ix, 175.
Barrande, J., Arethusina, Faune Silurienne, noticed, viii, 138.
Ptéropodes Siluriens de la Bohême, v, 120.
Batrachia and Reptilia, Synopsis of, *Cope*, noticed. l, 150.
Bayma's Mechanics, *Norton*, vi, 167.
Beaver, remains of in New Jersey, *Weld*, viii, 433.

Becquerel, Elémens d'électro-chimie, v, 75.
Belgian cave-remains, *Dupont*, iii, 121, 260.
Bennett, the Genus Hydrolea, l, 277.
Bentham's addresses before the Linnean Society, i, 410; iv, 297; l, 279, 325.
Bentham's Flora Australis, iii, 410.
Bentham and Hooker, Genera Plantarum, vol. I, noticed, *Gray*, v, 271, 404.
Benzole, etc., action of heat on, *Berthelot*, iv, 266.
Berg, O., obituary, v, 124.
Bergé, Le Chimiste, noticed, iii, 99.
Berthelot, action of heat on benzole and analogous hydrocarbons, iv, 266.
hydrocarbons in coal-tar, iv, 418.
on isomerism, ii, 257.
metals in organic radicals, ii, 256.
on carbonylic sulphid, vi, 129.
on cyanhydric acid, vii, 420.
on saturating organic bodies with hydrogen, vi, 125, 395.
on varieties of carbon, vii, 418.
on synthesis of organic acids, ix, 388.
synthesis of oxalic acid, v, 249.
hydrocarbons, iii, 96, 251, 389.
reductions in chemistry, iii, 386.
Bessemer, manufacture of cast-steel, i, 278.
flame, spectroscopic examination of, *J. M. Silliman*, l, 297.
Bickmore, A. S., Ainos of Yesso, v, 353.
Saghalien, etc., v, 361.
recent geological changes in China and Japan, v, 209.
journey through China, vi, 1.
Bigsby's Thesaurus siluricus, vi, 435.
Bill, J. H., test for bromids, v, 224.
Billings, E., work on fossils of Canada, i, 124.
Fossils of Anticosti, noticed, iii, 137, 259.
on Crinoidea, Cystidea, and Blastoidea, viii, 69; ix, 51; l, 225, 435.
subdivisions of Athyris, iv, 48.
structure of Blastoidea, vii, 353.
Worthen's Illinois survey, iii, 395.
Binney's Gould's Invertebrata of Mass., noticed, ix, 423.
Binocular vision, *Le Conte*, vii, 68, 153.
Birds, carbolizing, *Parker*, l, 283.
distribution and migration of, *Baird*, i, 78, 184, 337.
of North America, *Verrill*, i, 249.
Baird's N. American, ii, 134, 291.
Birt, W. B., obscuration of "Linné," iii, 411.
Bissell, S. B., St. Thomas earthquake, v, 133.
Blake, E. W., on figures produced by electric spark, ix, 289.
Blake, J. M., on measuring angles of crystals, i, 308.
Gay-Lussite from Nevada, ii, 221.
natural terpin, iii, 202.
on kaolinite and pholerite, iii, 351, 405.
on hortonolite, viii, 17.
Blake, T. A., Northwest coast of America, v, 242.
Blake, W. P., crystallized gold in California, i, 120.
fossils in Sierra Nevada, i, 406; in California, iii, 270.
fossil tapir in California, v, 381.
tooth from Table Mt., l, 262.
glaciers of Alaska, iv, 96.
gold-bearing rocks of California, v, 264.
Minerals of California, noticed, ii, 114, 125.
of Paris exposition, v, 194.
mineralogical notices, iii, 124.
on decrease in production of gold, vii, 432.
Report on the precious metals by, noticed, viii, 126.
Bliss, J. S., Wisconsin drift, i, 255.
Blomstrand, conjugate bodies in inorganic chemistry, ix, 110.
Blunt, E., obituary, ii, 433.
Bogota, S. A., earthquake at, *Hurlbut*, l, 408.
Boissier's Icones Euphorbiarum, ii, 427.
Bolton, H. C., on action of light on uranium, viii, 206.
Bone-caves of Brazil, *Reinhardt*, vi, 264.
Gibraltar, Report on, vii, 277.
see MAN.
Boott's Illustrations of Carex, v, 271, 409.
Borax in California, *Whitney*, i, 255.
Boron, combinations with halogens, i, 108.
graphitoidal, *Deville*, iii, 250.
Boston Society Natural History, Proceedings, i, 144, 431; ii, 140, 292; iii, 140, 423; iv, 144, 296; v, 144, 428; vi, 152, 288; vii, 152, 296, 436; viii, 452; ix, 288, 444.
condition and doings of, iv, 437.
memoirs, iv, 205; vi, 152.
Botanical Congress, London, i, 140; ii, 129.
Address to, *De Candolle*, ii, 230.
necrology, 1865, i, 263; 1868, *Gray*, vii, 140; 1869, ix, 129.
Club, bulletin of the Torrey, ix, 404.
nomenclature, *De Candolle*, l, 274.
Notabilia, *Gray*, ix, 120.
BOTANICAL NOTICES:—
Anderson, Monographia Salicum, iv, 420.
Annales Musei Botanici Lugduni-Batavi, iv, 424.

BOTANICAL NOTICES:—
Bentham, Flora Austral., iii. 410.
Bentham and *Hooker's* Gen. Plantarum, i, 132.
I, *Gray*, v, 271, 404.
Boissier, Flora Orientalis, iv, 122.
Icones Euphorbiarum, ii, 427.
Boott, Illustrations of carex, v, 271, 409.
Boussingault on action of foliage, ii, 126.
Brown R., works, iii, 125.
vol. II, vi, 271.
Brunet, Eléments de Botanique, noticed, l, 278.
Végétaux ligneux du Canada, iv, 122.
Bunge, on genus Cousinia, i, 416.
Generis Astragali, etc., l, 279.
Curtis, esculent Fungi of United States, ii, 129.
Botany of North Carolina Survey, v, 271.
Darwin, on climbing plants, i, 125.
Daubeny's Trees and Shrubs of the ancients, i, 268.
De Candolle, A., Lois de la Nomenclature, iv, 421.
Prodromus, ii, 427; vi, 408.
De Candolle, C., Piperaceæ, iii, 128.
Théorie de la Feuille, vi, 272.
Eichler, on morphology of the Androecium in Fumariaceæ, i, 412.
Englemann, Juncus, species of, in N. America, ii, 128.
Flora Brasiliensis, i, 412; ix, 404.
Caucasi, Rupprecht, l, 279.
of British Is., *Hooker*, noticed, l, 281.
of Iceland, revision of, l, 277.
Fournier on Cruciferæ, ii, 227.
Gray, A., Field, Forest, and Garden Botany, vii, 280.
Hand-book of British Algæ, ii 281.
Manual, iv, 284.
5th ed., 2d issue, v, 409.
Griseback, Catal. Plant. Cubens., iii, 409.
Henfrey, Elementary Botany, noticed, l, 429.
Hooker, Botanical works of, i, 2.
and *Baker*, Synopsis Filicum, vii, 143.
Hoopes, Book of Evergreens, vi, 270.
Krok, on Valerianeæ, i, 416.
Le Maout and *Decaisne*, Traité de Botan., v, 409.
Lesquereux, Catalogue of Mosses, v, 273.
Linnean Soc. Journal, vi, 271.
Lyell, Hand-book of Ferns, ix, 404.

BOTANICAL NOTICES:—
Martius, v., Flora Brasiliensis, iv, 421; vi, 408; ix, 404; l, 425.
Herbarium of, l, 279.
Miquel, affinités de la flora du Japan avec celles de l'Asie et de l'America du Nord, iv, 421.
Prolusio Floræ Japonicæ, etc., v, 403.
Moigno, growth of Lycoperdon giganteum, iv, 123.
Müller, Botany of Australia, i, 415.
vegetation of the Chatham Islands, i, 416.
Musci Boreali Americana, i, 417.
Paine's Catalogue, i, 130.
Parlatore, Botanical method, iii, 273.
Coniferæ, iii, 272.
species of Cotton, iii, 272.
Report of International Horticultural Exhibition and Botanical Congress, iv, 123.
Salisbury, Genera of plants, ii, 280.
Schmidt, Reisen in Amur-lande, vi, 408.
Seemann's Flora Vitiensis, i, 414.
Vilmorin-Andrieux & Cie, Fleurs de pleine terre, v, 269.
Watson, Index to names of Indian plants, vii, 143.
Wimmer, Salices Europeæ, iii, 272.

BOTANY:—
Algæ from hot springs, *Wood*, vi, 31.
American heather, *Gray*, iii, 128.
Anthers, *Müller*, iii 126.
Autumnal foliage, *Wharton*, vii, 251.
Branches, changes of direction of, ii, 130.
Caricography, *C. Dewey*, i, 226, 326; ii, 243; index to, ii, 325.
Cinchona, species of, ii, 131.
Corydalis cava, fertilization of, ii, 131.
Cyperaceæ, *Bœckeler*, l, 279.
Development of flower of Pinguicola vulgaris, ix, 404.
Dimerous flower of Cypripedium candidum, ii, 195.
Fertilization of flowers by insects, *Ogle*, l, 278.
Flora of Eastern Kansas, *Hall*, l, 29.
Hydrolea, the genus, *Bennett*, l, 277.
Ipomea simulans, *Hanbury*, l, 277.
Jalap, Tampico, l, 277.
Lauraceæ, *Clarke* on, ii, 131.
Lessingia Germanorum, ii, 128.
Life in the hot and saline waters in California, *Brewer*, i, 391; ii, 429.
Mountain plants, migration of, ii, 132.
Nomenclature, laws of, at Botanical Congress, vi, 63.
remarks on, *Gray*, vi, 74.

BOTANY:—
Notes on vegetable physiology, including effects of light, modes of fertilization, etc, ix, 405.
Oaks, Michaux Grove, l, 279.
Orotava dragon-tree, v, 270.
Palm culture, *Wendland*, ii, 132.
Plantæ Wrightianæ Cubenses, vii, 144.
Scolopendrium officinarum, *Paine*, i, 417; ii, 281.
Sequoia of California measured, ii, 129.
Sisymbrium, *Gray*, ii, 277.
Shortia and Schizocodon identical, v, 402.
Stamens, morphology of. iii, 273.
System in, *Kock*, ii, 132.
Tenacity of life of seeds and spores, i, 393.
Tree-labels, Creighton's, iii, 273.
Union of two trees, *Lyman*, iii, 275.
Boussingault, on action of foliage, ii, 126.
Brachiopoda, a division of annelida, *Morse*, l, 100.
Bradley, F. H., fish-remains in western New York, ii, 70.
Indiana geol. survey, l, 135.
Braithwaite's Retrospect, noticed. vi, 286.
Brandau, preparation of barium chlorate, l, 111.
Brande, W. T., obituary of, i, 428.
Braun, tests for glucose, iii, 250.
Brazil, reptilian remains. *Marsh*, vii, 390.
Bresse's hydraulic motors noticed, ix, 144.
Brewer, W. H., gold-rocks of Pacific coast, ii, 114.
gold-bearing rocks of California, v, 397.
Human skull found in California, ii, 424.
Mount Hood, ii, 422.
notice of Darwin's Variation under Domestication, vi, 140.
obituary of Martius, vii, 288.
on life in hot and saline waters in California, i, 391.
on tenacity of life in seeds and spores, i, 393.
review of Whitney's Report on California, i, 231, 351.
Brewster, D., obituary of, v, 284.
Brewster's neutral point, *Chase*, ii, 111, 112; iv, 70.
Brigham on Hawaiian volcanoes, noticed, v, 427.
Brines, chemistry of, *Goessmann*, iv, 77.
Brinton, D. G., on Central American manuscripts, vii, 222.
British Association, Address of T. H. Huxley, President, l, 383.
meetings of, ii, 433; iv, 436; vi, 148, 430; viii, 438; l, 150.
Proceedings of, i, 141.
British Islands, Student's flora of, noticed, l, 281.
Brodie, B. C., the new chemical calculus, iv, 270.
Bromhydric acid, prep. of, l, 113.
Bromids, test for, *Bill*, v, 224.
Brome, on Gibraltar caves, vii, 277.
Brown, R., Botanical works, noticed, vi, 271; iii, 125.
supposed absence of drift from Pacific slope of Rocky Mts., l, 318.
Browne, J. R., on mineral resources of the U. S., noticed, v, 439.
Browning, J., Spectra of meteors, v, 279.
Brunet, Eléments de Botanique, l, 278.
Brush, G. J., on Cookeite and Jefferisite, i, 246.
new mineral localities, ii, 268.
native hydrates of iron, iv, 219.
Kustel on ores, v, 287, 432.
on Sussexite, vi, 140, 240.
on Hortonolite, viii, 17.
on Durangite, viii, 179.
meteoric stone of Alabama, viii, 240.
on the magnetite in the Pennsville mica, viii, 360.
Bryant, C., habits of northern fur seal, noticed, l, 431.
Buchan, distribution of barometric pressure, etc., ix, 440.
Buchan's Meteorology, noticed, vii, 434.
Buckley's Texas Geol. Survey, ii, 437.
Buckton, double chlorids, etc., ix, 254.
Bunsen flame, theory of, *Knapp*, l, 255.
Bunsen, R., flame-reactions, iii, 110.
washing of precipitates, vii, 321.
Buoys, lighting power for, ix. 284.
Burkhardt, J., obituary, iii, 283.
Burton, B. S., enargite jamesonite, and tetrahedrite, v. 34.
Butler, T. B., Atmospheric system, noticed, l, 150.
Butterflies of North America, by Edwards, noticed, viii, 144, 433.

C

Cæsium, new salt of, *Sharples*, vii, 178.
Cahours, derivatives of tryethyl phosphines, l, 415.
Calculus, new chemical, *Brodie*, iv, 270.
Caldwell's Agricultural analysis, ix, 143.
California, *Blake's* list of minerals in, ii, 114, 125.
borax in, i, 255.
earthquake, 1868, vi, 428.
geological survey, i, 428; ix, 400.
gold-fields, geology of, vii, 134.
gold, crystallized mass of, i, 120.
human remains in, *Winslow*, i, 407.
skull discovered in, *Brewer*, ii, 424; iii, 265.

California, life in hot and saline waters of, i, 391; ii, 429.
new facts in geology of, *Whitney*, i, 252.
oils, distillation of, *Peckham*, vii, 9.
petroleum, see *Oil* and *Petroleum*.
publications of Geological survey of, viii, 133, 148, 151.
subdivisions of the Cretaceous of, *Gabb*, iv, 226; *Conrad*, iv, 376.
wealth of, Cronise on, noticed, vii, 150.
Whitney's geology of, reviewed, with notices of gold-rocks, i, 124, 231, 351.
Calomel, vapor-density of, vi, 398.
Cambridge course of Elem. Physics, v, 142; vi, 285.
Cambridge, Mass. Museum of Comparative Zoölogy, Report, noticed, vii, 286.
Campbell on the Northwest boundary, noticed, vii, 110.
Canals, between the Atlantic and Pacific, iv, 381.
Candles and soap, manufacture of, noticed, iv, 141.
Cannon, new kind of, *Treadwell*, i, 97.
strength of, *Treadwell*, v, 135.
Capitol at Washington, movement of dome of, by the winds, ix, 384.
Carbohydrates, acetyl compounds of, *Schützenberger* and *Naudin*, viii, 414.
action of water on, iii, 371.
Carbon, adamantine anthracitic, iv. 108.
bisulphid of, in sunlight, vi, 363.
in iron, how determined, vii, 374.
new sulphid of, i, 251.
replaced by silicon, ii. 255.
varieties, *Berthelot* on, vii, 418.
Carbonate, sodic, Kessler's patent, v, 254.
Carbonic acid, estimation of, *Johnson*, viii, 111.
Carbonous acid *versus* formic, *Barker*, iv, 263.
Carbonylic chlorid, *Schützenberger* on, vii, 423.
sulphid, *Than*, vii, 422.
Caricography, *Dewey*, i, 226, 326; ii, 243; index to, ii, 325.
Carius, synthesis of organic acids, iv, 265.
Carpenter, W. B., Eozoön Canadense, i, 406; vi, 245.
deep sea dredging, ix. 410.
on organic nature of Eozoön, iv, 367.
Carruthers on Equisetaceæ, vii, 279.
Carstanjen, E., thallic acid, iv. 269.
Caspary, on change of position in branches, ii, 130.
Cassin, J., obituary of, *Brewer*, vii, 291.
ornithological collection of, vii, 435.
Catlin, G., American Rocks, noticed, l, 135.
Caton, J. D., American Cervus by, noticed, viii, 144.
Caucasus, notes on, *von Koschkull*, vi, 214, 335.
highest peaks of, vii, 382.
Cave mammals, *Cope*, ix, 273.
Cavern, Malta, i, 140.
Central American MSS., *Brinton*, vii, 222.
Central Park of New York, report of commissioners of, noticed, vii, 445.
Cephalaspis, *Lankester*, i, 261.
Cephalization, No. IV, *Dana*, i, 163.
in mollusca, *Morse*, ii, 19.
Cerium, equivalent of, *Wolf*, vi, 53.
group, double sulphates of, ix, 356.
metallic, *Wöhler*, v, 254.
Chalk in Colorado, i, 401.
Chambers's Astronomy, iii, 422.
Encyclopedia, i, 288; ii, 139, 440; v, 143; vi, 433.
Champion, bromhydric acid, l, 113.
Chancourtois, origin of diamonds, ii, 271.
Chapman, E. J., on native lead northwest of Lake Superior, i, 254.
Chase, E. O., skylight polarization, iv, 265; v, 96.
Chase P. E., comparison of mechanical equivalents, l, 261.
connotations of magnetism, vi, 398.
laws of distribution of heat over the earth, iv, 68.
magnetism of iron, v, 247.
mechanical polarity, i, 90.
method of meteorological comparison, i, 158.
rain fall affected by the moon, vi, 281.
skylight polarization, ii, 111.
visibility of neutral points, ii, 112.
Chatard, T. M., gelatinous precipitates, l, 267.
Chatham Is., peat, etc., of, i, 123.
vegetation of, i, 416.
Chauvenet's Elementary Geometry, noticed, l, 438.
Chemical analysis; separation of lead and bismuth by bromo-thallates, i, 107.
on a process of elementary, *C. G. Wheeler*, i, 33.
repetition in, l, 249.
Sprengel pump in, ix, 378.
calculus, new, *Brodie*, iv, 240.
constitution and crystalline form, relation between, *Dana*, iv, 89, 252.
formulas of the silicates, iv, 252, 398.
History of six days of Creation, *Phin*, l, 294.
News, Am. ed., noticed, iv, 294; v, 144.

Chemical nomenclature, *Tillman's*, iii, 140.
philosophy, *Cooke*, noticed, vii, 435; l, 150.
synthesis, *Berthelot*, iii, 96, 251, 386. 389.
tables, *Sharples*, noticed, iii, 139.
CHEMISTRY :—
Acids, aromatic, synthesis of, l, 115.
vol. of croton oil, l, 116.
Alcohol, iso-butyl, conversion of, l, 114.
Arsenic and arsenous acid ethers, *Crafts*, l, 10.
barium chlorate. prep. of, l, 111.
beech-wood tar creosote, l, 117.
bromhydric acid, prep. of, l, 113.
Chloral, secondary prods. of, l, 109.
conjugate bodies in inorganic, *Blomstrand*, ix, 110.
copper, vol. estim. of, *Weil*, l, 108.
Eliot and Storer's, iii, 420; vi, 130.
Frankland's, iii, 137.
G. Fownes's, noticed, viii, 448.
Handbook of, *Rolf* and *Gillett*, vii, 294.
Harcourt's, noticed, ix, 141.
hydrogenium-amalgam, *Loew*, l, 99.
Miller's, noticed, iv, 295.
nitric anhydrid, prep. of, l, 112.
of copper, *Hunt*, ix, 153.
of the Bessemer process, l, 432.
of the Farm and Sea, by *Nichols*, noticed, iv, 141.
physiological, notices in, *Barker*, vi, 233, 379.
properties of precip. iron, *Lenz*; l, 110.
Roscoe's, iii, 137.
selenium, properties of, l, 111.
sulphur trioxyd, *Schultz-Dellack*, l, 114.
tantalic acid in microlite, l, 95.
thallium, position of, *Rammelsberg*, l, 108.
uranium, recovery of, l, 113.
Cheyney, J. S., mode of showing vibrations, vi, 243.
Chicago Museum, director of, iii, 281.
tunnel excavations, iii, 75.
Child, G., production of organisms, i. 381.
China, coal formation of, *Newberry*, ii, 151.
explorations in, *Richthofen*, l, 149, 410.
delta plain of, *Pumpelly*, v, 219.
geology of *Pumpelly*. i, 145.
journey through, *Bickmore*, vi, 1.
notes on, *Martin*, vii, 98.
See also *Geology*.
Chladni plates, mode of showing the vibrations in, *Cheyney*, vi, 243.
Chloral, secondary products of. l, 109.
Chlorid, carbonylic, *Schützenberger*, vii, 423.
Chlorids corresponding to peroxyds, i, 107.
Chlorine in organic compounds. *Warren*, ii, 156.
Christy, Reliquiæ Aquitanicæ, ix, 144.
Chromium, mode of obtaining, vi. 131.
and iron compounds of, *Corbin*, viii, 346.
Chromites of magnesium, *Nicklès*, vii, 16.
Chronograph, proposed, *Young*, ii, 99.
Chronology, new period in. *French*, l, 172.
Church, on namaqualite, l. 271.
Clark, A., receives Rumford medal, ii, 136.
Clark, H. J., animality of sponges, ii, 320.
Anthophysa Mülleri, ii. 223.
mind in nature, noticed, i, 286, 418.
on Spongiæ ciliatæ, v, 418.
on Vorticellidian parasite of Hydra, noticed, ii, 134, 284.
polarity and polycephalism, ix, 69.
Clarke, F. W., atomic volumes of liquids, vii, 180.
of solid elements, vii, 308.
of solid compounds, l, 174.
mineral analysis, v, 173.
on cobalt and nickel, viii, 67.
separation of tin from arsenic, etc., ix, 48.
Clarke, W. B, Dinornis and saurian remains of Australia, ix, 273.
sedimentary formations of New South Wales, v, 334.
Clausius, R., mechanical theory of heat with its application to the steam-engine, noticed. iv, 437.
Cleve, Ammonia-chromium bases, ix, 251.
Clouds, formation of, *Tyndall*, viii, 268.
Coal formation of China, *Newberry*, ii, 151.
of Langeac, Haute Loire, l. 269.
Coal-tar, hydrocarbons in, *Berthelot*, iv, 418.
Coal, see GEOLOGY.
work on, by *Geinitz*, noticed, i, 285, 430.
Coan, T., eruptions in Hawaii, i. 424; iii, 264; vi, 106; vii, 89; ix, 269, 393.
Coast Survey, magnetic observations in Maine, *Bache*, ii, 141.
recent Gulf-stream soundings, *Mitchell*, iii, 69.
report, v, 143; vii, 447; l, 439.
Superintendent appointed, iii, 281.
Cobalt, nitrate of, *Erdmann*, iii, 248.
and nickel, separation of. ii, 254; *Clarke*, on, viii, 67.
Cobbold, on beef and pork as sources of Entozoa, i, 283.
Coleoptera, rhynchophorous, *Le Conte*, iv, 41.

Color from mixing blue and yellow, *Rood*, i, 369.
Colorado, chalk in. i, 401.
geological observations in, iv, 284.
Mauvaises Terres in, l, 292.
parks of, iv, 351.
Sivatherium in, *Leidy*, l, 270.
Coloration by discharges from inductorium, v, 391.
Collier, D. C., chalk in Colorado, i, 401.
Colton's Journal of Geography, v, 142.
Combustion, rapid, production of ozone in, l, 255.
under pressure, vi, 394.
Comet, a new, *Winnecke*, l, 104.
Biela's, division of, iv, 130.
connection with meteors, iv, 128.
discovered, iii, 279.
III, 1862, elements of, iv, 130.
II, 1867, iv, 130.
of 1812 and 1846, *Kirkwood*, viii, 255.
prizes for discovery of, viii, 279; ix, 442.
Connecticut Academy of Arts and Sciences, Transactions of, ii, 138; l 437.
Conrad, T. A., check list of Eocene, etc., noticed, iii, 363.
new Eocene groups, i, 96
divisions of Eocene, *Hilgard* on, ii, 68.
fossil shells of the upper Amazon, noticed, l, 424.
mixtures of Cretaceous and Eocene fossils, ix, 275.
North and South Carolina Tertiary, iii. 260.
notes on American fossiliferous strata, vii, 358.
reply on the Cretaceous of California, iv, 376.
Cook, G. H., Geology of New Jersey, noticed, vii, 429.
Geol. map of N. J., noticed, vii, 112. 279.
Cooke, J. P., atomic ratio, vii. 386.
aqueous lines of spectrum, i, 178.
certain lecture experiments, and a new form of Eudiometer, iv, 189.
Chemical philosophy by, noticed, vii, 435; l 150.
cryophilite, iii, 217.
danalite, ii, 73
determination of protoxyd of iron in silicates, iv, 347.
heat of friction, i, 116.
on some American chlorites, iv, 201.
Copal of Zanzibar, ix, 123.
Cope, E. D., Alleghany fishes, noticed, vii, 285.
Dinosaur in N. J. Cretaceous, ii, 425.
Elasmosaurus platyurus, l, 140, 268.
Cope, E. D., extinct Batrachia and Reptilia of N. A., Part II, noticed, l, 150.
Extinct cave-manmals of U. S., noticed, ix. 273.
hypothesis of evolution, l, 432.
Maack's Schildkröten, noticed by, l, 136.
Megadactylus polyzelus, ix, 390.
new Enaliosaur, vi, 263.
on genus Lælaps, vi, 415.
on Raniform Aneura, noticed, v, 418.
on some reptilian remains, viii, 278.
synopsis of extinct Batrachia, Reptilia and Aves of N. A., viii, 450.
Copley medal to Chasles, i, 428.
Copper, chemistry of, *Hunt*, ix, 153.
diffusion of *Nicklès*, v, 67.
precipitation of, by hypophosphorous acid, *Gibbs*, iv, 210.
red oxyd of, *Blake*, iii, 124.
and nickel, precipitation of, by alkaline carbonates, iv, 213.
volumet. estimation of, *Weil*, l. 108.
Corals, *Verrill*, viii, 419, 431, 432; ix, 370.
Corbin, J. H., on compounds of chromium and iron, viii. 346.
Cordova observatory, Gould at, l, 144.
Cotta's Ore-deposits, noticed, ix, 271.
Cotting, J. R., obituary, v, 141.
Coues's lists of birds, noticed, vii, 150.
antero-posterior symmetry, etc., noticed, l. 432.
Cowan's facts in the history of insects, noticed, i, 135.
Cox, E. T., Indiana geol. survey, l, 135.
ethers of arsenic, l, 10.
Crafts, J. M., silicic acid ethers, iii, 155, 331.
silicon, combinations of, with alcohol-radicals, ix, 307.
qualitative analysis, ix, 142.
Craig's decimal system, noticed, iii, 423.
Creighton's tree-labels, iii, 273.
Cremona, work by, noticed, l, 438.
Creosote from beech-wood tar, l, 117.
Cretacous of California, subdivisions of, *Gabb*, iv, 226.
Conrad, in reply to Gabb, iv, 376.
of Iowa, exogenous leaves in, *White*, iv, 119.
plants of Nebraska, vi, 91.
of N. America, vi, 401.
Crinoidea, paleozoic, *Meek*, viii, 23; l, 135.
Billings, viii, 69; ix, 51; l, 225. 435.
convoluted plate in, *Hall*, i. 261.
Crocodile in Florida, *Wyman*, ix, 105.
Croll, J. ocean currents as distributers of heat, l, 118.
on motion of glaciers, viii, 273.
on Scottish glaciers, l, 292.
Cronise's wealth of California, noticed, vii, 150.

Crookes's edition of Mitchell on assaying, vi, 434.
metallurgy, noticed, ix, 144, 286.
Crotonic acid, iii, 110.
Croton oil, volatile acids of, l, 116.
Crowther, B., petroleum in Mexico, vi, 147.
Crustacea of Brazil, *Smith*, viii, 388.
localities of Artemia, viii. 430.
new Phyllopod. *Verrill*. viii, 244.
Crustacean parasitism, *Verrill*, iv, 126.
Crystals, expansion of, iii. 255.
on measuring, *Blake*, i, 308.
Crystallographic and crystallogenic contributions, No. IV, *Dana*, iv, 89, 252, 398.
Currents, marine, of the north circumpolar basin, iv, 383.
Curtis, Botany of N. C. survey, v, 271.
Esculent Fungi of United States, noticed, ii, 129.
Cyanic ethers, iii, 388.
Cyanhydric acid, *Berthelot*, vii, 420.
homologues of, *Hofmann*, iv, 416.
Cyclopedia, American, noticed, ii, 138; iv, 140; vi, 431.

D

D'Agelet's observations on fixed stars, noticed, iv, 287.
Dall, W. H., explorations in Russian America, i, 139; v, 96.
on a pure scarlet. l, 291.
Dana, J. D., on cephalization, with replies to objections, i, 163.
on spontaneous generation, i, 389.
on Shepard's corundophilite and paracolumbite, ii, 269.
on turnerite, ii, 420.
origin of earth's features, ii, 205, 252.
connection between crystalline form and chem. constitution, iv, 89, 252.
crystallograpic and crystallogenic contributions, No. IV, iv, 89, 252, 398.
on mineralogical nomenclature, iv, 145, 436.
chemical formulas of the silicates, iv, 252, 398.
chemical formulas of the feldspars, micas, scapolites, etc., and relations between proportion of silica and alkalies, iv, 398.
isomorphism of isometric and clinohedral feldspars, iv, 406.
classification of the elements, iv, 261.
editorial note in answer to Hinrichs, v, 102.
note on anhydrous silicates, v, 109.
Hawaii, eruption in, vi, 105, 122.
on the magnetite in the Pennsville mica, viii, 360.
Dana, J. D., geol. of the New Haven region, etc., noticed, ix, 275.
Mineralogy of, 5th ed., noticed vi, 132.
corrections for, viii, 433.
Dana, S. L., obituary of, v, 424.
Darwin on climbing plants, noticed, i, 125.
variation of animals under domestication, noticed. v, 141; *Brewer*, vi, 140.
Daubeny, C., obituary, v, 124, 272.
ozone from plants, iii, 273.
Daubrée on meteorites, ii, 124.
Substances Minerales, etc., noticed, viii, 419.
synthetic experiments on meteorites, noticed, viii, 419.
Davidson, G., effects of sun's heat on a sand-hill, ix, 255.
Dawson, J. W., Acadian Geology, noticed, vi, 267.
Eozoon Canadense, iii, 270; vi, 245.
fossils from the Laurentian, and on Eozoon, iv, 367.
graphite in Canada Laurentian, l, 130.
new Zonites, vi, 265.
paleozoic insects, iv. 116.
Day, Jeremiah, obituary of, iv, 291.
Dead Sea, formation of, *Lartet*, ii, 266.
Debray, on chlorids of tungsten, ii, 254.
on compounds of molybdic and phosphoric acids, vi, 397.
De Candolle, A., Address at Botanical Congress, ii, 129, 230.
laws of nomenclature at Botanical Congress, vi, 63.
Botanical nomenclature, l, 274.
Prodromus, noticed, ii, 427; vi, 408.
De Candolle, C., Piperaceæ, noticed, iii, 128.
theorie de la feuille, vi, 272.
DeForest, E. L., on correcting an error of temperature from unequal lengths of months, i, 371.
on correcting monthly means, ii, 154, 289.
on reducing meteorological observations, iii, 316.
De la Rue, W, solar physics, iii, 179, 322.
Delesse, Carte Agronomique, noticed, i, 429.
Hydrographic map of the department of the Seine, noticed, iii, 135; iv, 143.
Le Metamorphism des Roches, noticed, viii, 138.
Lithologie des Mers, ix, 144, 286.
on Origin of rocks, noticed. ii, 440.
Revue de Geologie, etc., noticed, i, 286.
Delessert F., obituary of. vii, 142.
Density, finding difference of. iii, 390.
Des Cloizeaux, action of heat on crystals, iv, 112.
on pachnolite, iii, 271.
on transparent wolfram, viii, 137.

Des Cloizeaux on wolframite, l. 271.
Descloizite of Wheatley mine, *Smith*, viii, 137.
Desor, on Sahara, noticed, i, 143.
Deville, graphitoidal boron, iii, 250, 388.
on magnesia in hydraulic cements, i, 425.
Dewey, C., Caricography, i, 226, 326; ii, 243, 325.
obituary of, v, 122.
Dexter, W. P., chemical apparatus, vi, 51.
sulphates of antimony, vi, 78.
preparation of hydrofluoric acid, ii, 110.
Diamond, colored by heat, ii, 270.
origin of, *Chancourtois*, ii, 271.
in Australia, ix, 275.
in Oregon, viii, 441.
Diamylene, oxydation with chromic acid, *Walz*, v, 57.
Diatomaceæ, spectroscopic examination of, viii, 83.
Dickerson, A. B., volcanic eruption, v, 131.
Dissociation of ammoniacal compounds. *Isambert*, ix, 387.
Distillation, on products of, *Assmuss*, v, 274.
Dodo, skeletons of, discovered, i, 273.
Doherty, Organic Philosophy, vol. II, v, 427.
Dolomite, formation of, *Hunt*, ii, 63.
gypsum decomposed by, *Hunt*, ii, 60.
Douglas, J., source of muscular power, v, 110.
Downing, A. J., fruits, etc., of America, noticed, ix, 142.
Dredging, ocean, ix, 129, 410.
Drift-boulder and scratches of Englewood. *Dwight*, i, 10.
Drift in Labrador, *Packard*, i, 30.
in Wisconsin, *Bliss*, i, 255.
in South Wales, *Symonds*, i, 259.
in western and southern states, *Hilgard*, ii, 343.
in southwest Iowa, *White*, iv, 119.
western. *Andrews*, viii, 172.
Dudley Observatory annals, noticed, ii, 139.
Dupont, Belgian bone-cave, iii, 121, 260.
Durangite, *G. J. Brush*, viii, 179.
Dutton, C. E., chemistry of the Bessemer process, l, 432.
Dwight, W. B., boulder of Englewood. i, 10.
Coxsackie land sinking, i, 12.
Dyeing, Schützenberger on, noticed, iii, 421.
Dynamo-magnetic machine, *Ladd*, v, 115.

E

Earth, origin of features of, *Dana*, ii, 205, 252.
Earthquake in Australia, vi, 427.
in Bogota, *S. A. Hurlbut*, l, 408.
in California, 1868, vi, 428.
in New England, viii, 418.
in Kansas, vi, 132; *Parker*, v, 129.
in N. York, Vt., and Canada, v, 135.
in South America, 1868, vi, 422.
in St. Thomas v, 133.
in New England, Oct., 1870, l, 434.
Earthquakes, library of works on, for sale, ii, 290.
Perry on, noticed, v, 268.
Winslow on, ii, 45.
Earthquake waves, etc., *Coan*, ix, 269.
Earth's crust, change of axis of, *Evans*, iii, 230.
Earth's orbit, secular variation in elements of, *Stockwell*, vi, 87, 436; l, 147.
Eastman, J. R., height of Kearsarge mountain, viii 439.
Eaton, D. C., Gray's field, forest, and garden Botany, noticed by, vii, 280.
Hooker's Synopsis Filicum, vii, 143.
Botanical notices, l, 425.
Eclipse, solar, on observing corona during. *Newcomb*, vii, 413.
spectroscope observations, vii, 127.
See further, *Sun*.
Edlund, galvanic expansion, iii. 256.
Edwards, A. M., living forms in hot waters of California, v. 239.
Edwards's Oiseaux fossiles de la France, noticed, vii, 276.
Edwards, W. H., Butterflies of North America by, noticed, vi, 150, 436; viii, 144, 433; ix, 427.
Eggertz, on determining carbon in iron, vii, 374.
Eggs, coloring matter of, *Städeler*, vi, 235.
Egleston, T., geological survey, noticed, iii, 114.
Elam's Physicians Problems, ix, 444.
Elasmognathus, *Gill* iii, 370.
Elasmosaurus, note on, *Cope*, l, 140, 268.
Elba stone implements, i, 427.
Elderhorst, W., Blowpipe analysis, iii, 136.
Electrical machine, form of discharge between poles of, *Wright*, ix, 381.
Electric apparatus, new, iii, 107, 247, 386.
brush and glow, spectrum of, iii, 394.
conductivities, method of measuring, *Mayer*, l, 307.
currents by percussion, *Rood*, ii, 12.
light, cost of, *Farmer* v, 112.
spark, figures produced by, ix. 289.
telegraph, Manual of, by F. L. Pope, noticed, viii, 150.
Electricity, discharge of Leyden jar with induction coil, *Rood*, viii, 153.
Faraday's discoveries in, *Tyndall*, vi, 34, 180.
Electrification of an island, l, 148.

Electro-magnetism, researches in, *Mayer*, l, 195.
Electro-motive force, *Haug*, ii, 381; iii, 43.
Elements, atomic volumes of, vii. 180,308.
new, associated with zirconium, viii, 405.
spectra of, *Hinrichs*, ii, 350.
Elevations, see HEIGHTS.
Eliot & Storer's Chemistry, noticed, iii, 420; vi, 130.
Elliot's birds of N. America, i, 433.
Encke, J. F., biographical sketch of, iii, 10.
Encyclopedia, Chamber's noticed, iv, 144.
Engel, C. G. F., obituary, v, 282.
Engelmann, G., Junci of N. America, ii, 128.
Engineering Magazine, Van Nostrand's, vii, 295.
Entomological correspondence of Harris, noticed, viii, 143.
Society, Philad., Transactions, i. 144; iv, 296; v, 144, 428; vi, 150, 151, 288.
Entomologist, American, noticed, vi, 435; l. 439.
Entozoa, beef and pork as sources of, i, 283.
new species of, *Verrill*, l, 223.
Eocene, division of, *Conrad*, i, 96; *Hilgard*, ii, 68.
See also GEOLOGY.
Eozoön, *Carpenter* on, i, 406; vi, 245.
in Finland, iv, 284.
in Massachusetts, ix. 75.
organic nature of, *Dawson* and *Carpenter*, iv, 367; inorganic nature of, *King* and *Rowney*, iv, 375.
See also GEOLOGY.
Erbia, *Bahr* and *Bunsen*, i, 399.
Erdmann, A. J., obituary of, ix, 144.
O. L., obituary of, ix, 144.
Erdmann's Exposé des formations Quaternaires de la Suede, noticed, vi, 435.
Essex Institute, Bulletin, vii, 436.
Peabody's gift to, iii, 416.
Proceedings, i, 144, 431; ii. 140, 292; iii, 424; iv, 296; v, 144, 428; vi, 288; vii, 296; ix, 444.
Ethers, arsenic and arsenious acid, *Crafts*, l, 10.
butyric and caproic, synthesis of, i, 115.
chlorinated, for synthesis of alcohols, *Lieben*, iii, 249.
cyanic, iii, 388.
of silicic acid, *Friedel* and *Crafts*, iii, 155, 331.
Ethyl, arseniate of, l, 10.
arsenite of, l, 15.
Ethylates, potassic and sodic, viii, 413.
Ethylene-sodium, a new radical, *Wanklyn*, viii, 413.
Eudiometer, a new form of, *Cooke*, iv, 199.
Evans, E. W., oil-bearing uplift of W. Virginia, ii, 334.
Evans, J., geological changes in position of axis of earth's crust, iii, 230.
Expansion, galvanic, iii, 256.
of crystals, iii, 255.
of metals and alloys by heat, *Matthiessen*, iv, 110.
of solids, measure of, *Müller*, viii, 407.
of water and mercury, iii, 254.
Expedition, polar, new, i, 427.
Exploration in Russian America, connected with Telegraph Co., i, 139.
Exploring expedition to the interior basin, *King*, iv, 118.
Exposition, Paris, 1867, *Nicklès*, v, 73.
minerals of, *Blake*, v, 194.
Reports on, ix, 287; *Barnard's*, viii, 297; *Blake's*, viii, 126; *Smith's*, viii, 447; list of, ix, 258; l, 296.
Eye-piece, new binocular, *Smith*, v, 42.

F

Falling bodies, apparatus for showing laws of, ii, 418.
Faraday, obituary, iv, 293; *Tyndall*, vi, 34. 80; *de la Rive*, v, 145.
Farmer, M. G., cost of electric light, v, 112.
magnetic effects of the aurora, i, 118.
mechanical equivalent of light, i, 214.
Farmer's theorem discussed, *Stimpson*, l, 372; note on Stimpson's paper, *Silliman*, l, 377.
Farquhar, E. J., new variable star, ii, 79.
Fay, T. S., Great Outline of Geography by, noticed, l, 151.
Featherstonhaugh, G. W., obituary of, iii, 135.
Femur, work on excisions of, for gunshot injuries, noticed, viii, 448.
Fendler, A., on prairies, i, 154.
Ferns, arrangement of, *Hincks*, l. 276.
Ferrocyanid of potassium, action of on monochloracetic ether, *Loew*, v, 383.
Feuchtwanger's treatise on Gems, noticed, iv, 295.
Field's History of Atlantic Telegraph, noticed, ii, 437.
Finlay, G., prehistoric Archæology in Greece, l, 251.
Fischer's salt, *Sadtler*, ix, 189.
Fishes destroyed in Bay of Fundy, vi, 269.
Fizeau, expansion of crystals, iii, 255.
Flagg's Hand-book of the Sulphur-cure for the vine-disease, etc., noticed, ix, 442.
Flame, Bunsen, theory of, *Knapp*, l, 255.
monochromatic, *Nicklès*, iii, 92, 93.
reactions, *Bunsen*, iii. 110.
sodium, *Nicklès*, iii, 92.
sounding, *Smith*, v, 421, 422.

Flames, luminous, *Hilgard*, vii, 218.
Flammarion's Astron. studies, iii, 423.
Fleck, H., on sodium in explosives, vii, 431.
Florida, change of level on coast of, i, 406.
Fluorescence, *Loughlin*, iii, 239.
Fluohydric acid, properties of, *Gore*, viii, 406.
Fluorids, new, *Nicklès*, v, 66.
Flying-fish. *H. Mann*, i, 272.
Fonda, on Franklinite, viii, 138.
Footmarks in Kansas, *Mudge*, i, 174.
Foraminifera in depths of ocean, ix, 415.
Forbes, J. D., obituary, vii, 294.
Force and Will, *Gould*, ix, 277.
Formic versus carbonous acid, *Barker*, iv, 263.
Fossil, see GEOLOGY and ZOOLOGY.
Foster, J. W., Mississippi Valley by, noticed, viii. 150.
Foucault's objectives, iii, 254.
Fournier on Cruciferæ, noticed, ii, 277.
Fownes, G., Chemistry by, noticed, viii, 448.
Frankland, E., acids of the lactic series, iv, 268.
Chemistry by, noticed, iii, 137.
on combustion under pressure, vi, 394.
on gaseous spectra, viii, 402.
source of muscular power, ii, 393.
Fraunhofer's lines, wave-lengths of, i, 395.
French, J. W., precession-period in Chronology, l, 172.
Fresenius, Johnson's edition of. ix, 255.
Fresnel's theory of reflexion from glass surfaces, *Rood*, iii, 104.
Friction, heat of, *Cooke*, i, 116.
Friedel, C., silicic-acid ethers, iii, 155, 331.
on silico-propionic acid, l, 416.

G

Gabb, W. M., Cretaceous of California, iv, 226.
Paleontology of California, noticed, i, 284; v, 288; viii, 133.
Gaffield, T., action of sunlight on glass, iv, 244, 316.
Gallatin, A. H., on ammonium and on tests for nascent hydrogen, ix, 256 257.
Galvanic battery, *Hough*, viii, 182.
circuit, resistance of, *Haug*, ii, 383; iii, 43.
Gas, effect of mixture with atmospheric air on illuminating power of, *Silliman* and *Wurtz*, viii. 40.
lamp and regulator, *Dexter*, vi, 51.
on determining the photometric power of, etc., *Silliman*, l, 379.
relation of light from, to volume consumed, *Silliman*, ix, 17.
well in New York, *Wurtz*, ix, 336.
Gases, specific gravity of. *Schmidt*, iii, 391.
Gasparini, G., obituary, v. 124.
Gasteropods, sulphuric acid of, ix, 420.
Gaussoin, E., on island of Navassa, noticed, ii, 439.
Geinitz. H. B., plants of the coal formation of Langeac, Haute Loire, l, 269.
on a German meteorite, vi, 284.
on Taconic slate in Germany, iii, 409.
Steinkohlen Deutschlands, etc., noticed. i, 285, 430.
on the upper Paleozoic rocks and fossils of S. E. Nebraska, review of, *Meek*, iv, 170. 282, 327.
Gems, Feuchtwanger's treatise on, noticed, iv, 295.
Genth, F. A., cabinet for sale, i, 141.
chrysolite with chrome iron, in Penn.. i, 120.
mineralogical contributions v, 305.
Geographical distribution of birds, i, 78, 184, 337.
notes on earliest discoveries in America, *Stevens*, viii. 299, 437.
notices, *Gilman* iv, 377; vii, 98, 377.
Soc. of London, Journal, noticed, iv, 381.
Geographie ancienne et moderne, dictionnaire de, noticed, iv, 382.
Geographisches Jahrbuch. 1866, noticed, iv, 382.
Geography, Great Outline of, noticed, l, 151.
Geological cabinet, *Genth's*, for sale, i, 141.
Sketches, by *Agassiz*, noticed, i, 407.
Charts, l, 425.
Reports, list of American, iii, 116, 399.
GEOLOGICAL WORKS, noticed:—
Barrande, Ptéropodes Siluriens de la Bohême, v, 120.
Bigsby, Thesaurus siluricus, vi, 435.
Billings, fossils of Anticosti, iii, 137, 259.
fossils of Canada, i, 124.
Buckley. on Texas Geol. survey, ii, 438.
Catlin, Rocks of America, l, 135.
Cocchi, central Geology of Italy, ii, 123.
Cook, Geology of New Jersey. vii, 112, 279, 429.
Dana, geology of the New Haven region, etc., ix, 275.
Dawson, Acadian geol., new ed., vi, 267.
Delesse, Carte geologique du department de la Seine, ii, 440, iii, 135.
Origin of rocks, ii, 440.
Revue de Geologie, i, 286; iv, 122; vi, 270.
Edwards, Oiseaux fossiles de la France, vii, 276.
Egleston, survey west of Omaha, iii, 114.
Erdmann, Exposé des Formations quaternaires de la Suède, vi, 405.

GEOLOGICAL WORKS noticed:—
Erdmann, map of Sweden, i, 429.
Gabb, Paleontology of California, i, 284; v, 288; viii, 133
Gaussoin, Island of Navassa, West Indies. ii, 439.
Geinitz, see GEINITZ.
Geological Magazine, ii, 273.
Hall, J., new Crinoidea, iii, 409.
Paleaster, etc., iii, 409.
Paleontology of New York, iv, 142, 273.
Hamilton, Report on Nova Scotia mines, ii, 123.
Hayden, Report of Colorado, ix, 258.
the Yellowstone and Missouri, ix, 118.
Rocky Mountain scenery, l, 125.
Hitchcock, maps in preparation, vi, 140.
Geol. Rep. on N. Hampshire, l, 425.
Houghton, Manual of Geology. iv, 121.
How, survey of Nova Scotia, ii, 123.
Hyatt, fossil cephalopods, v, 419.
Julien, Geology of Sombrero, ii, 439.
Kerr, Report on N. C. survey, iii, 284.
Kjerulf and *Dahl*, chart of Norway, vi, 269.
Lapham, map of Wisconsin, vii, 279.
Lartet and *Christy*, Reliquiæ aquitanicæ, ii, 291; vii, 151, 279.
Lesquereux, Fucoids in coal-formation, ii, 264.
Tertiary plants of Mississippi, iv, 121.
Logan, Canada survey, iii, 254.
map and sections by, i, 408.
map of Canada, ix, 394.
Maack's Schildkröten, *Cope*. l, 136.
Matthew, rocks of S. New Brunswick, ii, 124.
Meek, Bellerophontidæ, ii, 126.
crinoids, anat. of, l, 135.
geology of Mackenzie river, v, 418.
on fossils of Illinois, etc., and on Spirifer cuspidatus, i, 409.
and *Worthen*, Illinois paleontology, iii, 111.
Meneghini, Dentex Münsteri, ii, 124.
Moore, fossils in mineral veins, l, 265.
Mudge, Rep. Geol. Kansas, iii, 283.
Murchison, Siluria, v, 121.
Newberry, Chinese coal fossils, iii, 284.
survey of Ohio, ix, 400.
Packard's glacial phenomena of Labrador and Maine, iv, 117.
Pumpelly, China, Japan, etc., iii, 408.
Ramsay, geology of N. Wales, ii, 265.
Rémond, geology of N. Mexico, ii, 261.
Roemer, spider from coal-formation, ii, 123.
Safford, Tenn. Geol. Report, i, 409; vi, 435; viii, 416.

GEOLOGICAL WORKS noticed:—
Safford, geol. map of Tenn., i, 285.
Seeley, Ornithosauria, l, 134.
Shumard, Cretaceous of Texas, ii, 123.
paleozoic fossils, i, 124; ii, 118.
Sismonda, anthracite rocks of Alps, iii, 409.
chart of N. W. Italy, iii, 115.
Smithsonian contributions to paleontology, iii, 363.
Swallow, Rep. Geol. Surv. Kansas, iii, 283.
Vose, Orographic geology, ii, 123, 205.
White, Iowa survey Rep., iii, 284; iv, 121; v, 402.
Whitney, Rep. on Geol. of California, noticed and reviewed, i, 124, 231, 351.
Whittlesey, explorations in Minnesota, ii, 440.
Winchell, Grand Traverse region, ii, 268.
Woodward's British fossil Crustacea, iv, 116.
Worthen, Rep. Geol. Illinois, ii, 291; iii, 110, 395; vii, 151.
Winkler, Musée Teyler catalogue, v, 121.
Geological survey of California, i, 428; viii, 151; ix, 400.
Canada, iii, 254; ix, 394.
Colorado, iv, 284.
Indiana, viii, 138; l, 135.
Illinois, ii, 291; iii, 110, 395; vii, 151.
Iowa, ii, 272; l, 136.
Kansas, iv, 32.
Louisiana, viii, 331.
Nebraska iv, 284; v, 268.
New York, iv, 142, 273.
Nova Scotia, i, 285.
Ohio, viii, 417.
Tennessee, *Safford*, i, 285, 409; vi, 435; viii, 416.
GEOLOGY AND PALEONTOLOGY:—
Æpyornis, ix. 275.
Amazon fossils, l, 294, 424.
Amer. fossiliferous strata, *Conrad*, vii, 358.
Amiens gravel, *Tylor*, vi, 302, 436.
Andes of Ecuador, *Orton*, vii, 242.
Arizona, *Silliman* on, i, 289.
Australian gigantic marsupials, i, 258.
Aviculopecten, *Meek*, v, 64.
"Bad Lands" of Upper Missouri, *Hayden*, ii, 425.
Basin of the Great Lakes, *Newberry*, ix, 101.
Batrachia and Reptilia, *Cope*, l, 150.
Bellinurus Danæ, *Meek*, iii, 257, 394.
Blastoidea, structure of, *Billings*, vii, 353; l, 225.
Bone-caves, Brazil, *Reinhardt*, vi, 264.
Brazil, reptilian remains of, *Marsh*, vii, 390.

GEOLOGY AND PALEONTOLOGY:—
Burlington limestone formations, ii, 95.
Calamiteæ and Equisetaceæ, *Carruthers*, vii, 279.
California gold-fields, *Phillips*, vii, 134.
new facts in geology of, *Whitney*, i, 252.
Cave mammals, *Cope*, ix, 273.
Cephalaspis, species of, i, 261.
China and Japan, changes in, *Bickmore*, v, 209.
coal formation of, *Newberry*, ii, 151.
Japan, etc., *Pumpelly*, i. 145.
Coal in Nebraska, *Hayden*, v, 198, 326; *White*, v, 399.
in Rocky Mts., *Hayden*, v, 101.
"Cone in cone," *Marsh*, v, 218; *White*, v, 401.
Conn. River sandstone, supposed tadpole nests in, *Shepard*, iii, 99.
Corals from Nevada silurian, v, 62.
Crinoidea, *Meek* and *Worthen*, i, 124; viii, 23.
Hall, i, 261.
Cystidea, Blastoidea, *Billings*, viii. 69; ix, 51; l, 225.
Crab, oldest known British, ii, 264.
Cretaceous coal in New Mexico, *LeConte*, v, 136.
plants in Nebraska, vi, 91.
in N. America, vi, 401.
birds of, ix, 205, 272.
and Eocene, mixtures of, *Conrad*, ix, 275.
Dakota Cretaceous, *Hayden*, iii, 171.
Northeastern, geology of, *Hayden*, iii, 171.
Mammals of, ix, 274.
Dead Sea, *Lartet*, ii, 266.
Denudation, subaërial, *Whitaker*, vi, 268.
Dinornis, etc., in Australia, ix, 273.
Dinosaur, in Cretaceous of N. J., *Cope*, ii, 425.
Discosaurus, *Leidy*, l, 139.
Drift, absence of, from Pacific slope of Rocky Mts., *Brown*, l, 318.
in S. W. Iowa, *White*, iii, 301.
Earth's features, origin of, *Dana*, ii, 205, 252.
Elasmognathus, *Gill*, iii, 370.
Elasmosaurus platyurus, ix, 392; l, 140, 268.
Enaliosaur, new, *Cope*, vi, 263.
Entomostraca, Paleozoic, vi, 265.
Eocene, Conrad's group of, *Hilgard*, ii, 68.
new group in, *Conrad*, i, 96.
Eozoön, *Carpenter*, i, 406.
Bavaricum, iii, 398.
Canadense, *Dawson* and *Carpenter*, vi, 245, 436.
described by Dawson, iii, 270.

GEOLOGY AND PALEONTOLOGY:—
Eozoön in Massachusetts, ix, 75.
Euproöps, *Meek*, iii, 257, 394.
Fish-remains in Western N. Y., *Bradley*, ii, 70.
Fossils in California auriferous rocks, iii, 270.
Gavial from N. Jersey Eocene, *Marsh*, l, 97.
from China, *Richthofen*, l, 410.
Gibraltar caves, report on, vii, 277.
Glacial drift beneath Lake Michigan, *Andrews*, iii. 75; *Hilgard*, iii, 241.
Glaciers, cause of descent of, *Moseley*, l, 263.
in Green Mts., *Hungerford*, v, 1.
White Mts., iii. 42.
Gold-bearing rocks of California, *Blake*, v. 264; *Brewer*, ii, 114; v, 397.
Horse, tooth of, from Table Mt., *Blake*, l, 262.
Hudson river group, name of, *Meek*, iii, 256.
Illinois, new fossils in coal-formation of, *Meek* and *Worthen*, i 123.
Niagara fossils near Chicago, *Winchell* and *Marcy*, i, 409.
Section of rocks of, *Worthen*, iii, 258.
Insects, in N. Scotia, etc., iv, 116.
Iowa coal measures, *White*, v, 331.
Kansas, Liassic footmarks in, *Mudge*, i, 174; *Swallow*, i, 405.
supposed footmarks in, *Hitchcock*, vii, 132.
Lakes of North America, sources of, iii, 193.
as Chronometers, *Andrews*, l, 264.
Laurentian of Canada, graphite in, l, 130.
of Nova Scotia, ix, 347; l, 132; 417.
fossils, *Dawson*, iv, 367.
Lias and oolite of Australia, *Moore*, l, 269.
Lignites of the West, *Hayden*, v, 101, 198.
Louisiana, lower, geol. of, *Hilgard*, vii, 77.
Maine, post-tertiary fossils of, ii. 426.
Mastodon in California, *Silliman*, v, 378.
remains, Cohoes, N. Y., ii, 426; iii, 115.
"Mauvaises Terres" in Colorado, l, 292.
Medusæ fossils, *Haeckel* on, ii. 133.
Megadactylus polyzelus of Hitchcock, *Cope*, ix, 390.
Megalonyx Jeffersoni in Ill., *Leidy*, l, 270.
Michigan, Marshall group of fossils, i, 120.

GEOLOGY AND PALEONTOLOGY:—
Mississippi, Quarternary of, *Hilgard*, i, 311.
Mosasauroid reptiles, *Marsh*, viii, 392.
Naiades, shell-structure of, *White*, v, 400.
Nevada fossils, *Meek*, l, 422.
New England. Geology of, *Hunt*, l, 83.
New South Wales, sedimentary formations, v, 334.
New York, fossils in Livingston and Genesee Cos., i, 121; ii, 426.
Oil-wells, position of, *Lesley*, i, 139.
Ontario, geology of, *Hunt*, vi, 355.
Pacific coast, gold rocks of, *Brewer*, ii, 114.
Palæotrochis of Emmons, *Marsh*, v, 217.
Paleozoic crustacea and cirripeds, ii, 272.
fossils, *Shumard's* list of, ii, 118.
Peat-bed underlying drift, *Orton*, l, 54.
Pipestone quarry, *Hayden*, iii, 15.
Plants of coal-formation, *Geinitz*, l, 269.
of Miocene, polar, v, 281.
of Cretaceous and Tertiary, N. A., vi, 401.
Post-tertiary of Montana, elephantine tooth and tusk in, i, 427.
Primordial, Lingula flags, Wales, i, 262.
Rocky Mts., formations along east margins of, *Hayden*, v, 322.
Secondary fossils in Oregon, *Blake*, iv, 118.
Serpent, new fossil, *Marsh*, viii, 397.
Silurian, Nevada, *Whitney*, iii, 267.
Sivatherium in Colorado, *Leidy*, l, 270.
South American notes, *Rêmond*, iii, 114.
South Carolina phosphates, *C. U. Shepard, Jr.*, vii, 354.
origin of, *C. U. Shepard, Sr.*, vii, 338.
Sweden, bituminous gneiss and mica schist in, *Igelström*, v, 430.
Syringothyris, punctate, *Meek*, iii, 407.
Tapir, fossil, in California, *Blake*, v, 381.
Telerpeton Elginense, *Huxley*, iii, 406.
Tertiary, Mississippi and Alabama, *Hilgard*, iii, 29.
N. and S. Carolina, iii, 260.
Texas and Chihuahua, *Kimball*, viii, 378.
Vermont, geol. notes on, *Hunt*, vi, 222.
western, geol. of, *Perry*, vii, 341.
Volcanic, see *Volcano*.
Zonites, new, *Dawson*, vi, 265.
See also *Drift*, *Fossils*, *Man*, *Petroleum*, *Stone-implements*.
Geology and Revelation, *Molloy*, noticed, l, 151, 440.
Geometrical problems, *Warren's*, iii, 284.
Geometry, Treatise on Elementary, *Chauvenet*, noticed, l, 438.
Geometry, *Cremona*, l, 438.
Germination influenced by various bodies, *Lea*, iii, 197.
Genther, volatile acids of croton oil, l, 116.
Gibbes, R. W., obituary of, ii, 435.
Gibbes, L. R., on the occultator, vii, 191.
Gibbs, W., chemical and physical abstracts, i, 111, 250, 395; ii, 254; iii, 107, 246. 386; iv, 101, 265, 416; v, 249, 391; vi, 124, 258, 394; vii, 127, 272, 415; viii, 121, 401; ix, 106, 251, 386; l, 105, 413.
on map of the spectrum, iii, 1.
on a method of volumetric analysis, iv, 207.
theory of atomicities, iv, 209.
precipitation of copper by nitro-phosphorous acid, iv, 210.
precipitation of copper and nickel by alkaline carbonates, iv. 213.
employment of sand and glass filters in analysis, iv, 215.
estimation of manganese as a pyrophosphate, iv, 216.
obituary of Engel, v, 282.
measurement of wave-lengths, v, 298.
uric acid, vi, 289.
wave-lengths of spectral lines, vii, 194.
on action of alkaline nitrites upon uric acid and its derivatives, viii, 215.
method of avoiding observations of temperature and pressure in gas analyses, ix, 376.
Sprengel's pump in analysis, ix, 378.
optical notices, l, 45.
Gibraltar bone-caves, vii, 277.
Gill, T., Elasmognathus, iii, 370.
new species of tapir, l, 141.
Smithsonian contribution to paleontology, iii, 363.
Gilliss's astronomical observations, iii, 413.
Gilman, D. C., geographical notices, vii, 98. 377.
Gilman, W. S. Jr., auroras in Maine, vi, 390.
on aurora of April, 1869, viii, 114.
Giraud, J. P., Jr, obituary of, l, 293.
Glacial climate, *Murphy*, ix, 115.
Glaciers, cause of motion of, *Croll*, viii, 273.
cause of the descent of, l, 263.
of Alaska, *Blake*, iv, 96.
of Scotland, *Croll*, l, 292.
See also *Drift*, *Geology*.
Glass, action of sunlight on, *Gaffield*, iv, 244, 316.
crystalline nature of, *Wetherill*, i, 16.
lead-thallium, iii, 254.

Glass, silvering on, *Barker*, iii, 252.
test for parallelism in, *Gibbs*, l, 53.
Glucose, test for, *Braun*. iii, 250.
Glycerin and its derivatives, *Buff*, v, 256.
Glynn, J., Water as applied to moving mills, etc., l, 440.
Godwin, B., repetition in analysis. l, 249.
Goessmann, C. A., chemistry of brines, iv, 77.
salt, ix, 78.
Onondaga mineral springs, ii, 211, 368.
Gold, crystallized mass, Cal., *Blake*, i, 120.
decrease in prodcction of, vii, 432.
in Rhinebeck, N. Y., vii, 139.
in Scotland, vii, 280.
new solvents for, iii, 95.
of Montana, i, 125.
of Victoria, *Smyth*, ix, 263.
ores Kustel on *Brush*, vi, 287, 432.
peculiar occurrence of, *Silliman*. v, 92.
rocks of California, i, 351; v, 264; *Brewer*, ii, 114; v, 397.
See also *California*.
Gold-mining districts, Grass valley, *Silliman*, iv, 236.
Phillips on. noticed, vi 134.
Goldschmidt, H., obituary of, iii, 89.
Good Hope, cape of astronomer at, l, 149.
Gould, A. A., obituary of, ii, 434.
Gould, B. A., on Cordova observatory, l, 144.
on force and will, ix, 277.
on new variable star, ii, 80.
on solar eclipse, viii, 434.
on transatlantic longitude, ix, 228.
statistics of American soldiers, noticed, viii, 149.
Graham, T., obituary of, ix, 144.
Grapevine, sulphur-cure for diseases of, *Flagg*, noticed, ix, 442.
Graphite in Laurentian of Canada, l, 130.
Graphitoidal silicon, crystallization of, iv, 108.
Gray, A., Address by, on presentation of Rumford medal to Prof. Treadwell, i, 97.
American heather, iii, 128.
Botanical necrology. v, 121, 272; vi, 273; vii, 140; ix, 129.
notabilia, ix, 120
notices, i, 125, 410; ii, 126, 273, 427; iii, 125, 272, 409; iv, 122, 420; v, 121, 269, 402; vi, 270. 408; ix, 403; l, 42, 274.
obituary of W. J. Hooker, i, 1.
dimerous flower of Cypripedium candidum, ii, 195.
nomenclature of Müller, iii, 126.
Shortia galacifolia, v, 402.
Gray. A., remarks on laws of botanical nomenclature, vi, 74.
Greece, prehistoric archæology in, l, 251.
Green, H. A., fossils of Livingston and Genesee cos., N. Y., i, 121; ii, 426.
locality of fossils in N. Y., i, 121.
Green Mts., glacial action on, *Hungerford*, v, 1.
Greg on meteors, *Newton*, iii, 285.
Greville, R. R., obituary of, ii, 277.
Grisebach, catal. plant. Cubens.. iii, 409.
Guanape I., and its minerals, *Shepard*, l, 273.
Guanidin, synthesis of, iii, 110.
Guatemala, new species of tapir, *Gill*, l, 141.
Guerin, T., delivery from conduit pipe, v, 191.
Gulf-stream fauna, *Pourtales*, vi, 409, 413.
on the, etc., *Petermann*, noticed, l, 295.
soundings, iii, 69; vii, 379.
Gümbel, Eozoön Bavaricum, iii, 398.
Gun-cotton, *Abel*, iv, 288.
Gunther's record of zoological literature, noticed, i, 287.
Guyot's geographies, v, 287.
Gynœcological Society, Boston, vii, 288.

H

Hæmatoidin, *Holm* on, vi, 233.
Hagemann, G., analysis of pachnolite, i, 119.
crystallized cryolite, ii, 268.
Greenland minerals, ii, 93.
Ivigtite, vii, 133.
Haidinger, W. R., meteor of Knyahinga, iv, 131.
on meteorites, viii. 280.
Hail in China, *Williams*, iii, 281.
Hail-storm of June 20, 1869, *Hovey*, l, 403.
Hall, E., Flora of Eastern Kansas, l, 29.
Hall, Asaph, on secular perturbation of planets, l, 370.
Hall, J., convoluted plate in crinoids, i, 261.
geological map of U. States, by, vi, 140.
notes on geol. of Minnesota, iv, 144.
on new Crinoidea, iii, 409
on Paleaster, iii, 409.
paleontology of N. Y., by, noticed, iv, 142, 273; vi, 262.
shells of the Upper Helderberg, noticed, ix, 276.
Halliday, A. H., obituary of, l, 294.
Hamilton, W. R., biography of, ii, 293.
elements of quaternions, noticed, ii, 438.

Hammond, R., Indiana geol. survey, l, 135.
Hand, morphology of, *Wilder*, iv, 44.
Hansen on moon's constitution, *Newcomb*, vi, 376.
Harcourt, exercises in chemistry, ix, 141.
Harris, T. W., entomological correspondence of, noticed, viii, 143.
Harrison, J. P., heat to moon from sun, i, 277.
Harvey, W. H., obituary of, ii, 129, 273.
Hassall on urine, noticed, i, 422.
Haug, H., electro-motive force, and resistance of galvanic circuit, ii, 381; iii, 43.
Hawaii, eruptions in, *Coan*, iii, 264; vi, 105; vii, 89; ix, 393.
Hawley, C. E., mines of Almaden, Spain, v, 9.
quicksilver mines of Santa Barbara, Peru, v, 5.
Hayden, F. V., Dakota geology, iii, 15, 171.
formations of east margins of rocky mountains, v, 322.
geology of Kansas, iv, 32.
geological survey of Colorado, etc., ix, 258.
lignite deposits of the West, v, 198.
report on the Yellowstone and Missouri, noticed, ix, 118.
Rocky Mt. coal beds, v, 101.
Sun-pictures of Rocky Mt. Scenery, l, 125.
tour through "Bad Lands," noticed, ii, 425.
workable coal in Nebraska, v, 326.
Hayes, A. A., color of water of Lake Leman, ix, 186.
Hayes, E., obituary of, iv, 139.
Heat, absorbed by water vapor, ii, 259.
action of, on crystals, *Des Cloizeaux*, iv, 112.
atomic, *Schmidt*, iii, 391.
dew formed by, iii, 246.
distrib. by ocean currents, l, 118.
of, over the earth, *Chase*, iv, 68.
emission and absorption of, *Magnus*, ix, 106.
flame, use of, in laboratory, *Smith*, l, 341.
low, emission, absorption and reexion of, *Magnus*, l, 105.
mechanical theory of, with its application to the steam-engine, *Clausius*, noticed, iv, 437.
of combination of boron and silicon with chlorine and oxygen, ix, 386.
of friction, *Cooke*, i, 116.
of sun, effects on a sand-hill, ix, 255.
reflection of, from fluor-spar, etc., *Magnus*, ix, 107.
Heat, Magnus, to moon from sun, *Harrison*, i, 277.
undulatory theory of, *Babinet*, iv, 111.
Heer, Miocene polar flora, v, 281.
Heights, see *Altitudes*.
Heintz, on formula of urea, vi, 237.
recovery of uranium, l, 113.
Helmholtz, takes chair of Physics in Berlin. l, 293.
Henfrey's Elementary Botany, noticed, l, 429.
Hennessey, J. H. N., on distrib. of temperture, noticed, iv, 438.
rain-fall affected by moon, vi, 283.
Henry, J., extract from Smithsonian report on transfer of the library. v, 137.
Henry, T. H., nickel and cobalt from manganese, vii, 130.
Hercynite, *Wolle*, viii, 350.
Hermann, on some minerals, l, 270.
Hessenberg, min. notizen, noticed, i, 409; ix, 402.
Hetch-hetchy valley. *Hoffmann*, vi, 266.
Hilgard. E. W., drift in western and southern states, ii, 343.
Quaternary of Mississippi, i, 311.
geology of Louisiana. vii, 77.
Illinois glacial drift, iii, 241.
Miss. and Alab. Tertiary, iii, 29.
on Conrad's Eocene, ii, 68.
on geol. reconnoisance of Louisiana, viii, 331.
processes in luminous flames, vii, 218.
reclamation by, v, 278.
Hilgard, J. E., longitude measured by telegraph, iii, 130.
Hill, T., on the occultator, vi, 299.
Hillebrand, W., eruption in Hawaii, vi, 115.
Hind, H. T., Laurentian in Nova Scotia, ix, 347.
Hines, C. F., on meteors during eclipse, viii, 435.
Hines, H. K., ascent of Mt. Hood, iii, 416.
Hinrichs, G., physical abstracts, ii, 258, 417; iii, 252, 390; iv, 110.
spectral lines by, ii, 350.
answers to charges of, *Dana*, v, 102.
atom-mechanics, *Fleck*, vi, 258.
Hitchcock, C. H., N. A. geol. atlas by, vi, 140.
supposed fossil footmarks in Kansas, vii, 132.
Geol. Rep. on N. Hampshire, l, 425.
Hoffmann, C. F., Hetch-hetchy valley, vi, 266.
Hofmann, A. W., a new class of homologues of cyanhydric acid, iv, 416.
guanidin, iii, 110.
on methylic aldehyd, v, 249.
on persulphid of hydrogen, vi, 396.

Hofmann. A. W, on utilizing secondary products of chloral manufacture, l, 109.
Holm, on hæmatoidin, vi, 233.
supra-renal glands, vi, 236.
Honeyman, Laurentian of N. Scotia, 417.
Hood, Mt., in Oregon, ascent of. iv, 429.
Hooker, J. D., Flora of British Island, l, 281.
Hooker, W. J., obituary of, i, 1.
Synopsis Filicum, vii, 143.
Hoopes on evergreens, noticed, vi, 270.
Hörnes, M., obituary of, vii, 294.
Hough, G. W., automatic printing barometer, i, 43.
galvanic battery, viii, 182.
Hovey, H. C., hail storm in Mass., l, 403.
How, H., analyses of shells i, 379.
silicoborocalcite and natroborocalcite, v, 117.
Huggins, W., on heat of stars, viii, 286; ix, 108.
spectrum of new star, ii, 389.
Human remains, see *Man*.
Humboldt, life of *Stevens*, ix, 1.
Hungerford, E., evidences of glacial action on Green Mts., v, 1.
Hunt, T. S., lime and magnesia salts, ii, 49.
objects and method of mineralogy, iii, 203.
metallurgical method of Whelpley and Storer. iii, 305.
geology of Vermont, vi, 222.
Ontario, vi, 355.
of E. New England, l, 83.
Laurentian rocks in Mass., ix, 75.
chemistry of copper, ix, 153.
on norite, ix, 180.
labradorite rocks at Marblehead, ix, 398.
seat of volcanic action, l, 21.
Laurentian of Nova Scotia, l, 132.
Hurlbut, S. A., earthquake at Bogota, l, 408.
Hurricane, Bahamas, 1866, *Redfield* on, vii, 116.
Huxley, T. H., Address of, to the British Association. l. 383.
Telerpeton Elginense, iii, 406.
Hyatt, A., Fossil Cephalopods, noticed, vi, 150.
on Polyzoa, noticed. vi, 150.
parallelism between the stages of life in the tetrabranchiates, iv, 124.
Hydracids, action of, upon ethers, *Gal.* iv, 103.
Hydrocarbons. *Berthelot*, iv, 266, 418.
boiling point, etc., of, vii, 424.
distillation of, *Peckham*, vii, 9.
from animal fats, iii. 250.
new, *Schorlemmer*, iii, 108.
of Pennsylvania petroleum, v, 262.
Hydrocarbons, synthesis of, *Berthelot*, iii, 96, 251, 386, 389.
Hydrofluoric acid, preparation of, ii, 110.
Hydrogen and palladium, *Graham*, on, vii. 417.
nascent, tests for, ix, 256, 257.
persulphid of, *Hofmann*, vi, 396.
saturation with, *Berthelot*, vi, 125, 395.
Hydrogenium-amalgam, *Loew*, l, 99.
observations on, viii, 405.
Hydroxylamine, *Lossen*, i, 251.
synthesis of, *Lossen*, ix, 254.
Hyponouce Sarsii, *S. Lovén*, viii, 429.
Hyposulphites, new test for, *Lea*, iv, 222.

I

Ice, artificial, viii, 440.
Iceland, revision of flora of, *Babington*, noticed. l, 277.
Igelström, L. I., bituminous gneiss in Sweden, v, 38.
Illinois, geol. survey of, noticed, ii, 291.
Megalonyx Jeffersoni in, *Leidy*, l, 270.
Illuminating power of gas mixed with atmospheric air, *Silliman* and *Wurtz*, viii, 40.
Indian summer, *Willet*, iv, 340.
Indiana, geol. survey of, *Cox*, viii, 138; l, 135.
Indium, iv, 110.
Insects, Packard's guide to the study of, noticed, ix. 285.
Paleozoic, in Nova Scotia and New Brunswick, *Dawson*. iv, 116.
Iodhydric acid, iii, 109.
preparation of, viii, 411.
Iodid of silver, light on, *Lea*, ii. 198.
Iodine, detection of, *Lea*, ii. 109.
in lead disease, etc., i, 110.
Iowa, geology of, *White*. iv, 23.
geol. survey of, ii, 272; l, 136.
Iron, cast, permeable to gases, v, 392.
magnetic oxyd of, Chester, Mass., ii, 93.
native hydrates of, *Brush* iv, 219.
ore, specular, *Blake*, iii, 125.
properties of precipitated, *Lenz*, l, 110.
separation of sesquioxyd of, ii, 78.
specific magnetism of. *Chase*, v, 247.
Irons, meteoric. see *Meteoric*.
Isambert, dissociation of ammoniacal compounds, ix. 387.
Isomerism, *Berthelot*, ii, 257.
Isomorphism of leucite and other feldspars, *Dana*. iv, 406.
Itacolumite, *Wetherill*, iv, 61.
Ivory, artificial, i, 427.

J

Jackson, *C. T.*, Colorado metorite, iii, 280.
and *J. C.*, analyses of minerals, Chester, Mass., ii, 107, 421.
Japanese alloys, *Pumpelly*, ii, 43.
Jenkin, *F.*, electrification of an island, l, 148.
Johnson, *S. W.*, assimilation of nitrogenous bodies by vegetation, i, 27.
edition of Fresenius, ix, 255.
Eliot and Storer's Chemistry, iii, 420; vi, 130.
How crops grow, by, noticed, vi, 436; vii, 147.
How crops feed, by, noticed, ix, 403.
kaolinite and pholerite, iii, 351, 405.
nitrification, vii, 234.
on estimation of carbonic acid, viii, 111
on Peat, noticed, ii, 439.
terpin, iii, 200.
Jones, *J. M.*, on Nat. Hist. of Bermudas, Coralliaria, viii, 143.
Jones, *T. R.*, Foraminifera of oceans, noticed, i, 287.
Jukes, J. Beete, obituary of, viii, 296.
Julien's geology of Sombrero, ii, 439.

K

Kaemtz, head of Russian observatory, ii, 286.
Kansas, Eastern, Flora of, *Hall*, l, 29.
footprints in rocks of, i, 174.
geology of, *Hayden*, iv, 32.
Natural History Soc., l, 435.
notes on geology of, *Swallow*, i, 405.
Kearsarge Mt., altitude of, *Eastman*, viii, 439.
Kekulé, *A.*, Professor, iv, 137.
existence of chem. atoms, iv, 270.
Kellogg mines, Ark., *Smith*, iii, 67.
Kengott's Minerale der Schweiz. ii, 125.
Kennicott. R., in Russian America, i, 139.
obituary of, ii, 435.
Kent's cavern explorations, iii, 372.
Kentucky, petroleum in, *Safford*, ii, 104.
Kerr's survey of N. Carolina, noticed, iii, 284.
Kimball, *J. P.*, on geology of Texas and Chihualua, viii, 378.
Silver mines of Chihuahua, ix, 161.
King, *C.*, fossils collected by geol. survey under, l, 422.
King, on Eozoön, iv, 375.
Kingsley, *J. L.*, on Weston meteor, vii, 1.
Kinnan, G., Tent life in Siberia, noticed. l, 439.
Kingston, *G. T.*, on aurora at Toronto, viii, 65.
meteoric astronomy, noitced, iv, 428.
Kirkwood, *D.*, comets of 1812 and 1846, viii, 255.
meteor of July, 1867, iv, 288.
meteorite of July, 1846, i, 347.
periods of meteoric rings, ix, 429.
Kirkwood, *J. P.*, on filtration of river-waters for city supply, viii, 446.
Knapp, theory of Bunsen flame, l, 255.
Knop, *A.*, kaolinite, iii, 405.
Knowlton, *W. J.*, new mineral from Rockport, Mass., iv, 224.
Kock, on system in botany, ii, 132.
Kohlrausch, *F.*, on influence of temperature on elasticity, l, 350.
Koksharow's Mineralogie Russlands, noticed, i. 286; ii, 125; v, 121.
Kölliker's Icones Histiologicæ, ii, 283.
on polymorphism of Anthozoa, and structure of Tubiporæ, vi, 273.
Alcyonariæ, etc., noticed, l, 430.
Koschkull, *F. v.*, on the Caucasus. vi. 214. 335.
Kotschy, T., obituary of, v, 124.
Kræmer, on secondary chloral products, l. 109.
Krantz's catalogue, noticed, vi, 287.
Sæmann's minerals bought by, ii, 433.
Kundt, *A.*, tones in organ pipes, iii, 252.
velocity of sound. ii, 258
Kurr, *J. G.*, Mineralogy of, noticed, ix, 119.
Kustel on ores, noticed, *Brush*, vi, 287, 432.
on gold and silver ores, noticed, l, 295.

L

Laboratory, The, noticed, iv, 144; v, 117.
Labradorite or norite rock, *Hunt*, ix, 180. 398.
Ladd, *W.*, dynamo-magnetic machine, v, 115.
Ladenburg on silico-propionic acid, l, 416.
Lake, borax, of California, i, 255.
Lake-depressions, origin of, *Lesley*, i 141.
Lakes, great American, flow of, vii, 145.
of N. A. as chronometers, noticed, *Andrews*, l, 264.
of N. A., sources of, *Shufeldt*, iii, 193.
Lalande prize, awarded to Watson, l, 293.
Land of the globe, maps of northernmost, noticed, iv, 383.
Land-slide, *Perkins*, ix, 158.
Lane, *J. H.*, theoretical temp. of Sun, l, 57.
Lang's Astron. tables, noticed, vi, 275.
Lapham, destruction of forest-trees, iv. 424.
geol. map of Wisconsin, vii, 279.
Lartet's Archæology of Southern France, noticed, iv, 119.
formation of Dead Sea, ii, 266.

and *Christy*, Reliquiæ Aquitanicæ, noticed, ii, 291; vi. 287; vii, 151, 279; viii, 135; ix, 144; l, 152.
Laurent, Traité d'algèbre, v, 75.
Laurentian and Huronian of Nova Scotia. etc., ix. 347; l 132, 417.
of Canada, fossils from, *Dawson*, iv. 367; graphite in. l. 130.
Lawson's discourse on Oxford Botanists, l. 426.
rocks in Mass., ix, 75.
Laurite, with the platinum of Oregon, viii. 441.
Lavoisier, publication of works of, i, 105.
Lawrence Scientific School. Laboratory contrib., iv, 207, 224; v, 173; vii. 178, 319; l, 240.
Lea, I., Index to Unionidæ, noticed, v,129.
new species of genus Unio, etc., by, viii, 144.
on Unionidæ, noticed, iii, 411.
synopsis of the family Unionidæ, l, 284.
Unios sensitive to light, vii, 430.
Lea, M. C., a theory of photo-chemistry, iv, 71.
detection of iodine. ii. 109.
germination, iii, 197.
light on iodid of silver, ii, 198.
new test for hyposulphites, iv, 222.
nitro-glucose, v, 381.
transmitted and diffused light, vii, 364.
Lea and Wilson's photographic mosaics, noticed. i, 143.
Lead, perchlorid of, *Nicklès*, iii. 94.
and bismuth, separation of by bromo-thallates, i, 107.
Leaves, absorption of moisture by, l, 428.
LeConte, John, Cretaceous coal in New Mexico, v, 136.
LeConte, Joseph, binocular vision, vii, 68, 153.
LeConte J. L., rhynchophorous Coleoptera, iv, 41.
Leeds, A. R., form of aspirator, v, 423.
writing on a screen, v, 424.
Leffmann, H., ammonium-amalgam, ii. 72.
Lehmann on sugar in the blood, vi, 380.
Leidy, J., Elasmosaurus platyurus of Cope, ix, 392.
extinct mammalian fauna of Dakota, etc., noticed, ix, 274.
Megalonyx in Illinois, l, 270.
on Discosaurus and its allies, l, 139.
Sivatherium in Colorado. l. 270.
Leipzig, Astron. Gesellsch. publications, vi, 288.
Le Maout and Decaisne, Traité de botan., v, 409.
Lenz, properties of precipitated iron, l, 110.
Lereboullet, obituary of, i, 110.
Lesley, J. P., asphalt in Virginia, ii, 120.
petroleum at Brady's Bend, i, 123.
position of oil-wells, i, 139.
Lesleyite, *Smith*, viii, 254.
Lesquereux, L., Catalogue of mosses, noticed, v, 273.
Nebraska Cretaceous plants, vi, 91.
on fucoids in coal, noticed, ii, 264.
Level, change of, along Florida, i, 406.
Le Verrier on November meteors, iii, 299.
Levette, G. M., Indiana geol. survey, l, 135.
Levison, W. G., determination of magnesium group as oxalates. l, 240.
Lewis, J., shells planted in Erie canal, v, 137.
Lieben normal amylic alcohol, l, 416.
Life, origin of, *Dana*, i, 389.
in hot waters, *Brewer*, i, 391; iv, 152; vi, 31.
tenacity of, in spores and seeds, i, 393.
Light, action on sulphurous acid, ix, 368.
amount of transmitted by crown glass plates, *Rood*, l, 1.
calcium, magnesium, etc., in photomicrography, ix, 295; l, 366.
chemical reactions caused by, *Tyndall*, vii, 129.
from gas, see *Gas*.
liquids of high dispersive power, l, 50.
magnesium, i, 106.
mechanical equivalent of, i, 214, 396.
new, for photography, i, 427.
on iodid of silver, *Lea*, ii, 198.
polarization of, *Chase*, ii, 111.
reflexion of, from glass, *Rood*, iii, 104.
spectral lines, *Hinrichs*, ii, 350.
transmitted and diffused, *Lea*, vii, 364.
visibility of neutral points, ii, 112.
wave-lengths, measurement of, l, 45.
of Fraunhofer's lines, i, 395.
see further *Star, Photometric*.
Lighting power for buoys, ix. 284.
Lime and magnesia salts, *Hunt*, ii, 49.
Linnean Soc., Bentham's addresses to, i, 410; iv. 297; l, 279, 325.
journal of. vi, 271; l. 426.
Lippich, breadth of spectral lines, l, 106
Lippincott's vapor index, iv, 139.
Liquids of high dispersive power, l, 50.
Littrow, v. Carl, Sternschnuppen und Komuten, noticed, iv. 429.
Liver, sugar in, vi, 379; vii, 20, 258, 393.
Livingstone's African explorations, ix, 14.
safety of, v. 14, 141.
Lockyer, J. N., Astronomy by, vi, 275.
gaseous spectra, viii, 402.
spectroscopic examination of sun, viii, 121, 403.
spectrum analysis, ix, 432.

Loew, O., action of water on carbohydrates, iii, 371.
ferrocyanid of potassium on monochloracetic ether, v, 383
nitrite of ammonia, vi, 29.
bisulphid of carbon in sunlight, vi, 363.
derivatives of tri-chlormethyl-sulphon-chlorid, vii, 350.
action of sunlight on sulphurous acid, ix, 368.
ozone from rapid combustion, ix, 369.
on hydrogenium-amalgam, l, 99.
Loewy, B., solar physics, iii, 179, 322.
Logan, W. E., Canada Survey, iii, 284.
Eozoön Canadense, vi, 245, 436.
Geological Atlas by, noticed, i, 408.
Map of Canada by, ix, 394.
Long, T., on Arctic explorations, vii, 105.
Longitude measured by telegraph, iii, 130.
trans-Atlantic, *Gould*, ix, 228.
Loomis, E., magnetic declination, auroras and sunspots compared, l, 153.
meteorology by, noticed, vi, 149.
on meteor of May 20, 1869, viii, 145.
Loomis, F. E., influence of temperature on elasticity, l, 350.
Lossen, Hydroxylamine, i, 251; ix, 254.
Loughlin, J. E., fluorescence, iii, 239.
molybdenum and chromium, vi, 131.
Lovén, S., on a recent Cystidean, viii, 429.
Lunar radiation, ix, 433.
see *Moon*.
Lutken on Ophiuridea, noticed, viii, 430.
Lyceum Nat. Hist. N. Y., Annals of, i, 288; ii, 292; iv, 296; v, 428; vii, 296; ix, 288, 444.
Lyell's Handbook of Ferns, noticed, ix, 404.
Lyman, C. S., Cambridge Physics, noticed, vi, 285.
new wave apparatus, v, 384.
observations of Venus, iii, 129.
Lyman F. S., eruption in Hawaii, vi, 109.
Lyman, P. W., union of two trees, iii, 275.

M

Maack, G. A., Die bis jetzt bekannten Schildkröten, etc., noticed, l, 136.
Machinery, strength of, by Van Buren, noticed, viii, 151.
Magnesia and lime salts, *Hunt*, ii, 49.
in hydraulic cements, i, 425.
Magnesium, chromites of, *Nichols*, vii, 16.
group, determination of, as oxalates, *Levison*, l, 240.
light, i, 106.
colors by, iii, 91.
Magnetic declination, U. S., *Schott*, i, 149.
auroras and sunspots compared, *Loomis*, l, 153.
Magnetic filings phantoms, *Nicklès*, v, 68.
observations in Maine, *Bache*, ii, 141.
Magnetism, connotations of, *Chase*, vi, 398.
of chemical compounds, vii, 128.
origin of terrestrial, *Nicklès*, i, 110.
secular variation of terrestrial, Raulin, noticed, iv, 143.
Magnetite in mica, viii, 360.
Magneto-electric machines, new, iii, 107, 386.
Magneto electricity, see *Electricity*.
Magnus, absorptive power of aqueous vapor, iii, 246.
on emission, absorption, and reflection of heat, l, 105.
on heat, ix, 106, 107.
obituary of, ix, 442.
Maine, Hist. Soc., collection of, noticed, viii, 437.
magnetic observ. in, *Bache*, ii, 141.
Post-tertiary fossils of, ii, 426.
Maize, American, *Atwater*, viii, 352.
Malden's island, iv, 383.
Malmgren's Arctic annelids, noticed, ii, 284.
Mammals of Massachusetts, *Allen*, ix, 134.
Mammoth Cave of Kentucky, Norwood, noticed, l, 439.
Man, remains of, *Andrews*, v, 180; *Nicklès*, v, 72.
in Belgium, iii, 121, 260.
in California drift, vi, 407.
in Kent's cavern, Devon., iii, 372.
skull of, discovered in Cal., ii, 424; *Whitney*, iii, 265.
Mandon, G., obituary, v, 124.
Manganese, action of peroxyd of, on uric acid, *Wheeler*, iv, 110, 218.
estimation of, as pyrophosphate, *Gibbs*, iv, 216.
separation of nickel and cobalt from, *Henry*, vii, 130.
tungstate of, *Blake*, iii, 125.
Mann, H., obituary of, vii, 143.
Manners, R. H., obituary of, l, 150.
Manufacturer and Builder, the, noticed, vii, 295.
Map, hydrographic, of the department of the Seine, *Delesse*, noticed, iv, 143.
of Arctic, noticed, iv, 383.
Maps, for showing distribution of plants and animals, vii, 295.
Marasse, on Rhenish creosote, l, 117.
Marignac, niobium and tantalum, i, 111, 397.
tantalum compounds, iii, 108.
fluosalts of antimony and arsenic, iv, 102.
Markownikoff, on conversion of isobutyl alcohol, l, 114.
Marsh, O. C., Ohio sepulchral mound, ii, 1.
Mastodon at Cohoes, iii, 115.

Marsh, O. C., Delesse's map of Seine, iii, 135.
Kansas geological Reports, iii, 283.
new genus of fossil sponges, iv, 88.
contributions to the mineralogy of Nova Scotia, No. I, iv, 362.
Paleotrochis of Emmons, and "cone in cone." v, 217.
geol. map of U. S., vi, 140.
metamorphosis of Siredon, vi, 364, 436.
new species of fossil horse, vi. 374.
Brazil reptilian remains, vii, 390.
on new Mosasauroid reptiles from N. J., viii, 392.
new species of Protichnites, viii, 46.
on fossil serpent from N. J., viii, 397.
birds from the Cretaceous and Tertiary of U. S., ix, 205, 272.
gavial from N. J. Eocene, l, 97.
Rocky Mt. expedition, l, 292.
Marshall's physiology by Smith, vii, 151, 435.
Martin, W. A. P., notes on China, vii. 98.
Martius, C. F. P. v., Akademische Denkreden, v, 143.
herbarium of l 279.
obituary of, *Brewer*, vii 288.
Mastodon, discovery of a, l, 422.
Mattencci. C. obituary of, vi, 285.
Matthew, G. F., on rocks of New Brunswick noticed. ii. 124.
Matthiessen, expansion of metals and alloys by heat iv, 110.
expansion of water and mercury, iii, 254.
on narcotine, etc., l 256.
death of, l, 437.
Maxwell, J. C., real-image, stereoscope v, 116.
Mayer, A. M., notes on physics by, viii. 151.
on method of measuring electric conductivities, l, 307.
Researches in Electro-magnetism, l, 195.
report of eclipse, viii, 436.
McDonald, M., apparatus for collecting and washing precipitates in test-tubes, iv, 188.
Mechanical equivalents, comparison of, *Chase*, l, 261.
polarity, *Chase*, i, 90.
Mechanics *Weisbach's*, noticed, viii, 449.
Meek, F. B., Bellinurus Danæ, iii, 257, 394.
corals from Nevada, v, 62.
Ethmophyllum and Archæocyathus, vi, 144.
genus Aviculopecten, v, 64.
Hudson River group, iii, 256.
notice of Stumpson on the Hydroblinæ, i, 270.
Meek, F. B., on Geinitz's views on the Paleozoic of S. E. Nebraska, iv, 170, 282, 327.
on Paleozoic Crinoidea, viii, 23.
punctate Syringothyris, iii, 407.
shell-structure of Spirifera, vi, 262, 408.
the genus Palæacis, *Haime*, iv, 419.
on Bellerophontidæ, noticed, ii, 126.
on Crinoids, noticed, l, 135.
check-lists of N. A. fossils, noticed, iii, 363.
Geol. of Mackenzie river, by, noticed, v, 418.
on genus Taxocrinus, noticed. i, 124.
on Spirifer cuspidatus, noticed, i, 409.
Meek and *Hayden*, Paleontology of upper Missouri, iii, 363.
Meek and *Worthen*, Ill. paleontology, iii, 113.
on a fossil scorpion, etc., from Ill, vi, 19.
Meissner, Neue Untersuchungen über den elektrisirten Sauerstoff, l, 151, 213.
Mellitic acid, iii, 388.
Mercury, expansion of. iii, 255.
vapor of, effect on plants, v, 71.
Metallurgical method of Whelpley and Storer, *Hunt*, iii, 305.
Metallurgy, Crookes's, noticed, ix, 144, 286.
Metals in organic radicals, *Berthelot*, ii, 256.
influence of temperature on modulus of elasticity of, l, 350.
Meteor near Charleston, *Shepard*, i, 276.
of May 20th, 1869, viii, 145, 146.
Meteors during eclipse, *Himes*, viii, 435.
See *Shooting Stars*.
Meteoric fire ball of July, 1846, *Kirkwood*, i, 347.
iron, large Australian mass, i, 426.
of Colorado, ii, 218, 250, 286.
Franklin co., ix, 331.
Greenland, *Shepard*, ii. 249.
Hungary. *Szabo*. ii. 432.
Mexico, *Shepard*, ii, 347.
Tennessee, *Shepard*, ii, 251.
Virginia, *Shepard*, ii, 250.
Meteoric irons, l, 293.
analysis of, *Smith*, ix, 332.
rings, periods of, *Kirkwood*. ix, 429.
Meteorite of Alabama, viii, 240; ix, 90.
Aumale, i. 426.
Cohahuila, N. Mexico, *Shepard*, iii, 384; *Smith*, vii, 383.
Colorado, *Smith*, iii, 66; *Jackson*, iii, 280.
fall of, in Georgia, *Smith*, l, 293, 339; *Willet*, l, 335.
flight of, in Ohio, *Smith*, ix, 139.

Meteorite from Georgia, *Shepard*, vi, 257.
Germany, *Geinitz*, vi, 284.
Kansas, *Mudge*, vi, 429.
Kuyahinga, *Haidinger*, iv, 131.
Mexico, *Smith*, v, 77.
U. S., new, *Shepard*, vii, 230.
Wisconsin, *Smith*, vii, 271.
Weston, Conn., Dec., 1807, vii, 1.
Meteorites, carbonaceous matter of, vii, 130.
classification of, *Shepard*, iii, 22.
Daubrée on, ii, 124.
experiments relative to, by *A. Daubrée*, viii, 418.
light, heat, and sound, accompanying fall of, *Haidinger*, viii, 280.
origin of, *Graham*, iv, 109.
Sorby on, i, 136, 137.
Meteorological comparison, *Chase*, i, 158.
observations, reductions of, *DeForest*, iii, 316.
Météorologiques de Bruxelles, noticed, iv, 144.
Meteorology, Buchan's, noticed, iv, 434.
Butler's, noticed, l, 150.
Loomis's, noticed, vi, 49.
on correcting an error in tables of temperature, *DeForest*, i, 371.
Methyl, arsenate of, l, 14.
arsenite of, l, 19.
benzyl, i, 112.
Mettenius, G. H., obituary of, v, 123.
Meunier, Science et les Savants in 1866, noticed, v, 76.
Mexican scientific commission, iii, 98.
Mexico, Rémond's geology of, ii, 261.
Michaux Grove of oaks, l, 279.
Microscope, illumination of opake objects in, i, 283, 424.
mechanical finger for, i, 331; ix, 304.
artificial light for photography, ix, 294; l, 356.
Microscopic test-plate of Nobert, *Woodward*, vi, 352; viii, 169.
Miller, W. A., Chemistry noticed, iv, 295.
spectrum of a new star, ii, 389.
obituary, l, 437.
Miller, W. H., crystallization of graphitoidal silicon, iv, 108.
Mineral analysis, process in, *Clarke*, v, 173.
resources of U. S, Browne on, noticed, vi, 430.
Taylor on, noticed, vi, 431.
states and territories, *Raymond*, viii, 136.
waters, analysis of, *Thomas*, ii, 196.
Onondaga, *Goessmann*, ii, 211, 368.
unknown, in Haddam columbite, *Shepard*, l, 93.

Minerals—
Albite, iii, 227; Albertite, viii, 362; Altaite, v, 312; Amblystegite, l, 270; Ambrosite, l, 273; Anatase, ii, 272; Andesine, ii, 107; Aphthitalite, l, 274; Apophyllite, ii, 270; Aquacreptite, vi, 256; Arksutite, ii, 94; Asbestus, ix, 271; Atelestite, ix, 401.
Barnhardtite, v, 319; Biphosphammite, l, 274; Biotite, ii, 91; Bismuthine, l, 94; Bismutite, l, 94; Boulangerite, v, 320; Brochantite, v, 321.
Calaverite, v, 314; Cassiterite, ii, 271; Chlorite, iv, 201; Chlorite and Chloritoid, ii, 91, 108, 421; Chrysolite, i, 120; l, 35; Cinnabar, ii, 125; Columbite, ii, 248; l, 90; Columbium minerals, ix, 402; Cookeite, i, 246; Copper-glance, iii, 124; Corundophilite, i, 394; ii, 91, 92, 269, 421; iv, 258, 283; vi, 256; Corundum, ii, 90, 421; ix, 272; Cosalite, v, 319; Cotunnite, ii, 247; Cryolite, ii, 93; v, 141; vi, 400; Cryophyllite, crystallized, ii, 268; Cryophyllite, iii, 217; Cyrtolite, iv, 224.
Danaite, iii, 125; Danalite, ii, 73; Descloizite, viii, 137; Diamond, iv, 61, 119; viii, 441; Diaspore, ii, 90, 108, 268; vii, 319; l, 96; Dolomite, containing manganese, l, 37; Durangite, viii, 179.
Ekebergite, iii, 403; Emery, ii, 83, 421; Enargite, v, 34; vi, 201; Eulytite, ix, 401.
Feldspars, ii, 125; iv, 398; Fibrolite, ii, 272; Franklinite, viii, 138
Gay-Lussite, ii, 220, 221; Gibbsite, ix, 402; Gieseckite, ii, 270; Gmelinite, iv, 362; Gold, i, 120, 125; Grahamite, ii, 420; Grothite, iv, 258; Guanapite, l, 273; Guanoxalite, l, 273.
Hagemannite, ii, 246; Hallysite, ix, 402; Hercynite, viii, 356; Herschelite, l, 272; Hessite, v, 309; Hornblende, ii, 271; Hortonolite, viii, 171; Hübnerite, iii, 123, 125.
Ivigtite, vi, 400; vii, 133.
Jamesonite, v, 36; Jefferisite, i, 247.
Kaolinite, iii, 351, 405; Kerargyrite, iii, 124.
Laurite, ii, 422; viii, 441; Laxmannite, l, 270; Lavroffite, l, 272; Ledererite, iv, 362; Lepidomelane, iii, 222; Lesleyite, vii, 319; viii, 254; Leucite, iv, 406; ix, 335; Leucophane, iv, 405; Limonite, iv, 219.
Magnetite, viii, 360; Malacone, iii, 228; Maldonite, l, 272; Marcylite, i, 210;

MINERALS:—
Margarite, ii, 90, 107; iv, 283; Melinophane iv, 405; Melonite, v, 313; Micas, iv, 403: ix, 272, 401: Microlite ?, l, 93, 95; Monazite, ii, 420; Montanite, v, 317, 318; Moronolite, i, 212.
Nacrite, iii 67, 351; Namaqualite, l. 271; Native lead, i, 254; Natroborocalcite, v, 120.
Œllacherite, iv, 256; Opal pseudomorph, l, 37; Ouvarovite, ii, 268; Oxammite, l 274.
Pachnolite, i, 119; ii, 93; iii, 271; Paracolumbite, ii, 269; Partzite, iii, 362; iv, 119; Pattersonite, vii, 320; Pencatite, ix, 402; Petalite, iv, 405; Petzite, v, 309; Pholerite, iii, 351, 405; Phosphammite, l, 274; Phosphorchromite, l, 271; Predazzite, ix, 402; Proustite, iii, 124.
Rahtite, i, 209; Redondite, l, 96; Rutile, ii, 422.
Samarskite, ix, 402; Scapolite, iv, 403; Scheeletine, i, 215; Selagite, (a rock) ix, 401: Sellaite, l, 273; Selwynite, l, 272; Serpentine, ii, 272; Silicoborocalcite, v, 117; Sillimanite, ii, 272; Spinel, ii, 271; Spodumene, ii, 248; Steinmark, iii, 351; Struvite, l, 272.
Talcosite, l, 272; Taltalite, iii, 407; Tantalum, ix, 402; Taylorite, l, 274; Tellurium, v. 306, 313; Tennantite, iii, 67; Tephroite, vi, 231; Tetradymite, v, 306, 316; Tetrahedrite, iii, 67, 125; v. 37. 320; Turgite, iv, 219; Tu nerite, ii, 420.
Uwarowite, i, 216.
Vanadiolite, l, 271; Vermiculite, l, 96.
Wavellite, ix, 402; Warnerite, iv, 403; Whitneyite, v, 305; Willemite, vi, 230; Wilsonite, v, 47; Wolframite, l, 271; Wollangongite, viii, 85; Wulfenite, iii, 125.
Isomorphism of gadolinite, datolite and euclase, ix, 400.
from N. Jersey, *Roepper*, l, 35.
of Elba, ix, 402.
of Mr. Schoolcraft, for sale, viii, 442.
paragenesis of, *Reuss*, ii, 271.
Sæmann's collection of, ii, 433, 435.
Stone implements of, ii, 272.
Mineralogical contributions, *Shepard*, l, 90; v, *Rath*, l, 270.
nomenclature, *Dana*, iv, 145, 436.
curiosities of Paris Expositien, *Blake*, v. 194.
Mineralogy, Adam's Tableau of, ix, 119.
Dana's, 5th ed., vi, 132.
Kurr's, noticed, ix, 119.
objects and method of, *Hunt*, iii, 203.
Mineralogy of Nova Scotia, No. I, *Marsh*, iv, 462.
Mining, Phillips on, *Silliman*, vi, 134.
Kustel on, *Brush*, vi, 432.
Miquel's Prolusis Floræ Japonicæ, v, 403.
Mississippi valley, J. W. Foster on, noticed, viii, 150.
Mitchell, H., Gulf-stream soundings, iii, 69.
Mitchell, W., obituary of, vii, 434.
on assaying, new edition, vi, 434.
Mixter, W. G., willemite and tephroite, vi, 230.
Molecular Mechanics, *Bayma* on, vi, 167.
Physics, *Norton*, i, 61, 196; vi, 167.
Molecules, size of, *Thomson*, l, 258.
Molloy, G., Geology and Revelation by, noticed, l, 151, 440.
Mollusca classified on basis of cephalization, *Morse*, ii, 19.
Molybdenum, mode of obtaining, vi, 131.
Molybdic and phosphoric acids combined, vi. 397.
Monochromatic flame, *Nicklès*, iii, 92, 93.
Montana, yield of mines of, i, 125.
elephantine tooth and tusk in, i, 427.
Monthly means, on correcting, *De Forest*, ii, 154, 289.
Moon, constitution of, Hansen on, *Newcomb*, vi. 376.
crater Linné, iv, 130.
crater of, obscured, *Birt*, iii, 411.
inequalities in mean motion of, *Newcomb*, l, 183.
radiation of, ix, 433.
of heat from, *Rosse*, viii, 436.
Moore, fossils in mineral veins, l, 265.
Lias and oolite of Australia, l, 269.
Morphology of human hand, *Wilder*, iv, 44.
Morse, E. S., classification of mollusca, ii, 19.
on Brachiopods, ix, 103.
Brachiopoda, a division of the Annelida, l, 100.
Moseley, Henry, cause of descent of glaciers, l, 263.
Mossman, S., Origin of Seasons by, viii, 150.
Mound, sepulchral, in Ohio, *Marsh*, ii, 1.
Mount Hood, ascents of, *Brewer*, ii, 472; *Hines*, iii, 416.
Mudge, B. F., footmarks in Kansas, i, 174.
Kansas geol. Report, iii, 283.
meteorites, vi, 429.
Muir, T., thermal units, l, 149.
Mulder, G. J., Die Chemie der Austrockenden Oele. etc., noticed, iv, 438.
Müller, F., botanical works by, i, 415, 416.
Müller, J., anthers. iii, 126.
on nomenclature of, *Gray*, iii, 126.
Murchison, R. I., extracts from address to Roy. Geog. Soc., v, 14.

Murchison, R. I., Siluria by, noticed, v, 121.
Murphy, J. J., cause of glacial climate, ix, 115.
Murray, A., geographical distribution of mammals, noticed, iii, 410.
Muscular power, *Frankland*, ii, 393.
force, source of, *Douglas*, v, 110.
Musée Teyler, Catalogue of, noticed, i, 287; iii, 284.
Museum of Comparative Zoology, Bulletin of, noticed, viii, 451.
report noticed, iv, 141.
Mushrooms esculent, *Curtis* on, ii, 129.
Music harmony in, *Poole*, iv, 1.
Musical ratios, *Poole*, v, 289.

N

Naphtha from California tar, iii, 242.
Rangoon petroleum, iii, 251.
Naphthalin, Vohl's test for, vi, 130.
Narcotine, and its decomposition products, l. 256.
National Academy of Sciences, i, 423; ii, 287, 431.
Nature, a new weekly, viii, 452; ix, 287.
Natural Selection, Wallace on, noticed, l, 142.
Naturaliste Canadien, noticed, vii, 296.
Naval Observatory, Report on the Eclipse, ix, 134.
Navassa, Gaussoin on, noticed, ii, 439.
Nebraska, geol. survey of, iv, 284.
Negro instruments, *Innes*, i, 140.
Neumann's apparatus for determining velocity of sound, ii, 417.
Neurine, v, 258.
Neutral point, Brewster's, *Chase*, iv, 70.
Newberry, J. S., China coal formation, ii, 151.
extinct N. A. floras, vi, 401.
Geol. of basin of great Lakes, ix. 111.
old water courses, ix, 267.
on Chinese coal fossils, iii, 284.
on Ohio geol. survey, ix, 400.
on the oil region of Indian creek, etc., Ky., i, 284.
Newcomb, S., Hansen on the Moon's constitution, vi, 376.
inequalities in Moon's mean motion, l. 183.
mode of observing transits of Venus, l, 74.
on observation of corona, etc., during a total eclipse, vii, 413.
New England, eastern, geol. of, *Hunt*, l, 83.
Newton, H. A., Astronomical abstracts, iv, 127, 287, 426.
Hamilton's Quaternions, ii, 438.
Newton, H. A., recent contributions to astro-meteorology, iii, 285.
Shooting Stars, i, 58, 192, 273; ii, 429; iii, 78, 276; iv, 426; v, 78, 225; vii, 118, 399; ix, 244.
Watson's Astronomy, vi, 145.
recent auroras. l, 146.
New York, notice of paleontology of, by Hall, iv, 142, 275.
Regents of Univ., 20th Rep., vi, 262.
Nichols, W. R., chromites of magnesium, vii, 16.
Nickel and cobalt, separation of, ii, 254.
manufacture, products of, ix, 365.
nitrite of, *Erdmann*, iii, 248.
Nickles, J., bibliography, iii. 99.
correspondence of, i, 103; iii, 89; iv, 66.
obituary of. vii, 434.
Niles, W. H., Burlington limestone formations, ii, 95.
Niobium and its compounds, i, 111, 397; v, 393, 396.
Nitrification, *Johnson*, vii, 234.
Nitrites, monatomic, iii, 388.
of cobalt and nickel, iii, 248.
Nitrogen in peat, *Schultzenstein* on, ii, 132.
pentoxyd of, preparation of, l, 112.
Nitroglucose, *Lea*, v, 381.
Nitroprussids, formation of, viii, 406.
Nobert's test-plate, *Woodward*, vi, 352.
nineteen band, viii, 169.
review of Stodder on, *Sullivant*, vi. 347.
Nodal figures in organ-pipes, iii, 252.
Nomenclature, Mineralogical, *Dana*, iv, 145, 436.
Norite, *Hunt*, ix, 180, 398.
North Polar expedition, Swedish, viii, 227.
Norton, W. A., Astronomy noticed, iv, 295.
corona in solar eclipses, l, 250.
molecular physics, i, 61, 196; vi, 167; ix, 24.
Norwood, U. S., Mammoth Cave of Kentucky, noticed, l, 439.
Nova Scotia Institute, Proceedings of, i, 144.
Laurentian rocks of. l, 132.
mines and minerals of, ii, 123.
Novara, Reports on expedition of, i, 430.
Nugent's optics, noticed, vi, 436.

O

Obituary—
Arnott, G. A. W.. vi, 273; vii, 140.
Bache, A. D., iii, 282.
Berg, O., v, 124.
Blunt, E., ii, 433.

OBITUARY—
Brande, W. T., i, 428.
Brewster, D , v, 284.
Bridges, T., i, 265.
Burkhardt, J., iii, 283.
Cassin, J., vii, 291.
Cotting, J. R., v, 141.
Cuming, H., i, 265.
Dana, S. L., v, 424.
Daubeny, C., v, 124, 272.
Day, Jeremiah, iv, 291.
Delessert, F., vii, 140.
Dewey, C., v, 122.
Encke, J F., iii, 10.
Engel, C. G. F., v, 282.
Erdmann, A. J., ix, 144.
Erdmann, O. L., ix, 144.
Falconer, H., i, 264.
Faraday, M , iv, 293; v, 145; vi, 34, 180.
Featherstonhaugh, G. W., iii, 135.
Forbes, J. D , vii, 294.
Forchhammer, i, 284.
Gasparini, v, 124.
Gibbes, R. W., ii, 435.
Giraud, J. P , Jr., l, 293.
Goldschmidt, H., iii, 89.
Gould, A. A , ii, 434.
Graham, T., ix, 144
Greville, R. K., ii, 277.
Halliday, A. H., l, 294.
Hamilton, W. R., ii, 293.
Harvey, W. H., ii, 129, 273.
Hayes, Ezekiel, iv, 139.
Hooker, W. J., i, 1, 265.
Hörnes, M., vii, 294.
Jones, G., ix, 284.
Junghühn, F. W., i, 263.
Jukes, J. B., viii, 296.
Kennicott. R., ii, 435.
Kotschy, T., v, 124.
Krüger, H., i, 263.
Lerebouillet, D. A., i, 110.
Lessing. C. F., i, 263.
Lindley, J., i, 265.
Magnus, G., ix, 442.
Mandon, G., v, 124.
Mann, H., vii, 143.
Mariners R. H., l, 150.
v. Martius, C. F. P., vii, 288.
Matteucci, vi, 285.
Mattheissen A., l, 437.
Mettenius, G. H., v, 123.
Miller, W. A., l, 437.
Mitchell, W., vii, 434.
Montague, J. F. C., i, 267.
Nicklès, J., vii, 434.
Page, C. G., vi, 149; viii, 1.
Paxton, J., i, 264.
Peabody, G., viii, 441.
Pedersen, J., l, 436.
Pelouze, T. J., iv, 137.

OBITUARY—
Pickett, E. J., iv, 292.
Plücker, J., vi, 149.
Poeppig, E., vii, 142.
Porter, J. A., ii, 290.
Reeve, L., i, 283.
Richardson, J., i, 265.
Riddell, J. L., i, 141, 267.
Rogers, H. D., ii, 136.
Rosing, A., vi, 148.
Rosse, Lord, v, 142.
Sæmann, L., ii, 435.
Sars, ix, 144.
Sartwell, H. P., v, 121.
Schacht, H., i, 264.
Scheele, A., i, 264.
Schlechtendal, D. F. L., v, 124.
Schomburgh, R. H., i, 264.
Schott, H., i, 264.
Schultz, C. H., v, 272.
Shumard, B. F., viii, 294.
Silbermann, J. F., i, 103.
Strong, T., vii, 293.
Sturm, J. W., i 264.
Treviranus, L. C., i, 264.
Turczaninow, N., i. 263.
Uhler, W. M., i. 429.
Unger, F., ix, 410.
Ward, N. B., vi, 273; vii, 141.
Whewell, W., i, 428.
Observatory of Chicago, i, 140.
Ocean currents. *Croll*, l, 118.
life in depths of, vi, 409, 413; viii, 451; ix, 129, 415.
on the currents of, ix, 413.
temperature of, at depths, ix, 410.
Occultator, *Gibbes*. vii, 191.
description of, *Hill*. vi, 299.
Ohio, geol. survey of, viii, 417.
peat-bed underlying drift in, l, 54.
sepulchral mound in, *Marsh*, ii, 1.
Oil, drying of, *Mulder*, iv, 428.
illuminating, from California tar, *Silliman*, iii, 242.
see also *Petroleum*.
Olmsted's Astronomy, Snell's ed., ii. 139.
Onondaga springs, *Goessmann*, ii, 211,368.
Optical notices, *Gibbs*, l, 45.
See *Light*.
Ordway, J. M., Assmuss on distillation, v, 274.
Schützenberger's treatise on dyeing. iii, 421.
Organic substances, artificial formation of. *Williams*, vi, 327.
Organisms, living, observations and experiments on, in heated water. *Wyman*, iv, 152; l, 391. *Brewer*; vi, 31, *Wood*.
Ornithosauria. *Seeley*, noticed, l, 134.
Orton, J., Andes of Quito, v, 90.
and the Amazon, noticed, l, 294.
geol. of Andes of Ecuador, vii, 242.

Orton, J., observations on the Andes and Amazon, vi. 203
Orton. E., on Peat-bed beneath drift in Ohio, l, 54, 293.
Ostrich, acclimatization of, i, 109.
Owen, R., On Life and Species, vii, 33.
Cavern of Bruniquel, l, 429.
on the Dimorphodon. l, 424.
Equines of South America, l, 424.
Owen, Richard, rock-salt, New Iberia, La., ii, 120.
Oxalic acid, synthesis of, *Berthelot*, v, 249.
Oxydizing mixture of nitric acid and chlorate of potassium, *Storer*, viii 190.
Oxygen, electrized, second research on, *Meissner*, abstract of, *Barker*, l, 213.
new method for, iii, 389.
Ozone, density of, *Soret*, iv. 108.
from rapid combustion, *Loew*, ix, 369; *Than*. l, 255.
researches on, *Meissner*, l, 151, 213.
prod. of in rapid combustion, l, 255.
thallous oxyd, test for, viii, 410.

P

Packard, A. S., Drift of Labrador, i, 30.
glaciers in White Mt. valleys, iii, 42.
Guide to study of Insects, noticed, vi, 274; ix, 285.
Amer. Entomology for 1869, l, 431.
Page, C. G., obituary of, vi, 149; viii, 1.
Paine, J. A., Jr., catalogue of plants by, noticed, i, 130.
Scolopendrium officinarum, ii, 281.
Palæacis, Haime, *Meek, Verrill*, iv, 419.
Paleontology, vegetable, by W. C. Schimper, noticed, viii, 272.
see also *Geology* and *Zoology*.
Palladium and hydrogen, *Graham* on, vii, 417.
Paraffin, products of oxyd of, *Gill* and *Mensel*, viii, 416.
Parasitism. Crustacean, *Verrill*, iv, 126.
Paris Exposition, Barnard's report on, ix, 175.
Parker, H. W, on carbolizing birds, l, 283.
Parker, J. D., earthquake in Kansas, v, 129.
Parkhurst, photo-mapper, ix, 37.
star-mapper, viii. 163.
Parks of Colorado, iv, 351.
Parlatore, essay on cotton, noticed, iii, 272.
on botanical method. iii, 273.
on Coniferæ, iii, 272.
Parry's report on Kansas Pacific R. R. route, vii, 112.
Paxton, J., obituary of, i, 264.
Peabody Acad. Nat. Sci., memoirs, vii, 436.
Peabody, G., gifts of, ii, 433; iii, 131, 414.
obituary of, viii, 442.
Peat bed beneath drift in Ohio, *Orton*, l, 54.
Peat, Johnson on, noticed, ii, 439.
nitrogen in, *Schultzenstein*, ii, 132.
of Chatham Is., i, 123.
Peckham, S. F.. California petroleum samples, iii, 345.
apparatus for analysis of petroleum, iv, 230.
distillation of hydrocarbons. vii, 9.
on bitumens and the formation of asphaltum, viii, 131.
on origin of Albertite, viii, 362.
Pedersen, J., obituary, l, 436.
Pelouze, T. J., obituary of, iv 137.
Pengelly, W., exploration of Kent's cavern, Devon., iii, 372.
Penrose, method of predicting occultations, etc., by, noticed, viii, 449.
Perfumery, art of, noticed, iv, 141.
Perkins, G. H., molluscan fauna of New Haven, ix, 276.
on a land-slide, ix, 158.
Perrey, A., on earthquakes, noticed, v, 268.
sale of library of. ii, 290.
Perry, J. B., geol. of W. Vermont, vii, 341.
Petermann, A., Gulf Stream, etc., noticed, l, 295.
Peters, C. H. F., asteroids discovered by, ii, 135; (111), l, 285; viii, 400.
elements of asteroid (85), i, 277; (109), ix, 277; (111), l, 432; (112), l, 409.
Petit, Traité d'Astronomie, iii, 99.
Petroleum, apparatus for analysis of, *Peckham*, iv, 230.
California, falsified samples of, *Peckham*, iii, 345; *Silliman* iii, 245.
geol. relations of. *Andrews*, ii, 33.
in Canada, *Winchell*, i, 176.
Mexico. *Crowther*, vi, 147.
New S. Wales, *Clarke*, ii, 267.
Russia, ii, 272.
S. Kentucky and Tenn., *Safford*, ii, 104.
of Archangel and Zante, i, 427.
on Allegheny river, *Lesley*, ii, 123.
or oil wells, position of. *Lesley*, i, 139.
origin of, *Lesquereux* on, ii, 264.
region of, in Ky.. *Newberry*, i, 284.
synthesis of. *Berthelot*, iii, 251.
uplift of W. Virginia. *Evans*, ii, 334.
see also *Hydrocarbons*.
Pfeil, F. S., ammonium-amalgam, ii, 72.
Philips. J. A., geology of California gold fields, vii, 134.
on mining and metallurgy of gold and silver, noticed, *Silliman*, vi, 134.
Philological convention, American, vii, 287.

Phin, J., Chemical History of the Six days of Creation, l, 294.
Phosphate from W. Indies, *Shepard*, vii. 428.
Phosphoric acid, iii, 109.
in diaspore. *Shepard*, l, 96.
and molybdic acids, vi, 397.
Phosphorus terchlorid of, action of alcohols on, iii, 389.
Photo-chemistry, a theory of, *Lea*, iv, 71.
Photograph of solar prominence, *Young*, l, 404.
Photography, a new light for, i, 427.
see also *Light* and *Photo-Micography*.
Photoheliograph, work done with, at Kew observatory, ix, 431.
Photo-mapper, *Parkhurst*, ix, 37.
Photometric experiments, *Rood*. ix, 145; l, 1.
Photo-micrography, calcium light in, *Woodward*, l, 366.
magnesium and electric lights in, *Woodward*, ii, 189; ix, 294.
Physician's problems, *Elam*, noticed, ix, 444.
Physics, molecular, etc., *Norton*, i, 61, 196; ix, 24.
notes on. *Mayer*, viii, 151.
Physiological chemistry, notices of papers in, *Barker* vi, 233, 379; viii, 49.
Physiology, Marshall's, noticed, vii, 151, 435.
Pickering, E. C., forms of spectroscope, v, 301.
Solar eclipse, viii, 425.
Pickett, E. J., obituary of, iv, 292.
Pigeaux, on the Leporide, v, 127.
Pisani, F., Comptoir mineralogique of, iii, 115.
on corundophilite, i, 394.
taltalite, iii, 407.
Planets, discovery of, *Watson*, iv, 426.
new, *Peters*. viii, 400.
secular perturbations of, *Hall*, l, 370.
see also *Asteroids*.
Plants, assimilation of nitrogenous bodies by, *Johnson*, i, 27.
of California, dried, iv, 123.
see *Botany*.
Platinum compounds, *Schneider*, viii, 411; ix, 109.
Plücker, J., obituary of, vi, 149.
Poeppig, E., obituary of, vii, 142.
Poisons, Wormley's micro-chemistry of, noticed, iv, 140.
Polarity in animals, and polycephalism, *Clark*, ix. 69.
mechanical, *Chase*, i, 90.
Polarization, skylight, in Nebraska, v, 96.
Poncelet Traité des propriétés des figures, iii, 99.
Poole, H. W., harmony in music, iv, 1.
Poole, H. W., on musical ratios, v, 289.
Pope, F. L., Manual of Electric telegraph by, noticed, viii, 150.
Population, decreasing increase of, iii, 141.
Porter, J. A., obituary of, ii, 290.
Porter, S., vowel elements, ii, 167, 303.
Portland Soc. Nat. Hist., Proceedings, vii, 436.
Potassio-platinic oxy-sulpho-platino-stannate, viii, 412.
Pourtales, L. F., Crinoids, etc., from deep sea dredgings, noticed, viii, 451.
Gulf-stream fauna, vi, 409, 413.
Prairies. *A. Fendler* on, i, 154.
Precession-period in chronology, l, 172.
Precipitates, app. for collecting and washing, in test-tubes, *McDonald*. iv, 188.
gelatinous, *Chatard*, l, 247.
washing of, *Bunsen*, vii, 321.
Premium offered by the Netherland Soc., etc., ix, 284.
Prizes for discovery of comets, ix, 442.
Proceedings of Societies viii, 152, 298, 451.
Proctor, R. A., star-drift, ix, 436.
Protichnites, new species of, from Potsdam sandstone, *Marsh*, viii, 46.
Protozoa, *Clarke*. ii, 320.
Pumpelly, R., delta-plain of China, and changes of Yellow R., v, 219.
geol. observ. in China, etc., i, 145.
Geol. of China, etc., by, noticed. iii, 408.
Pynchon's Chemical Physics, noticed, ix, 443.

Q

Quaternions. Hamilton's elements of, ii, 438.
Quicksilver mine, Santa Barbara, v, 5.
Almaden, Spain, v, 9.

R

Radicals, organic, metals in, *Berthelot*, ii, 256.
Railroad between Atlantic and Pacific, iv, 381.
Rain-fall affected by the moon, *Chase*, vi, 281; *Hennessey*, vi, 283.
Rammelsberg, on position of thallium. l, 103.
Ramsay, Geol. of N. Wales, noticed, ii, 265.
Rand, T. D., ivigtite, vi, 400.
Ranking's Medical Abstract, noticed vi, 286.
Rath, G. v., Mineralogical contributions, noticed, ix, 401; l, 270.
Rathke, properties of selenium, l, 111.

Raulin, V., secular variations of terrestrial magnetism, noticed, iv, 143.
Raupach, O. F., earthquake at St. Thomas, v, 134.
Rawlinson, H. C., changes in the Aral sea, iv, 133
Raymond, R. W., Report on mineral resources by, viii, 136.
Reale Comitato geologico d'Italia, ix, 401.
Redfield, J. H., Bahamas hurricane, 1866, vii, 116.
Reemelin on wine-making, vi, 432.
Reeve. L., obituary of, i. 283.
Reichardt, recovery of uranium, l, 113.
Reimann on aniline, ix, 142.
Reinhardt on Brazil bone-caves, vi, 264.
Reliquiæ Aquitanicæ, noticed, ii, 291; vi, 287; vii, 151, 279; viii, 135; ix, 144; l, 152.
Rémond, A., geol. of N. Mexico, ii, 161.
notes on S. American geology, iii, 114.
Repsold circle, *Abbe*, iii, 207, 309.
Reptiles, Mosasauroid of New Jersey, *Marsh* viii, 392.
serpent, from N. J., *Marsh*, viii, 397.
Reptilia, Batrachia, etc., of N. America, *Cope*, viii, 451; l, 150.
Reptilian remains, *Cope*, ii, 425; vi, 263 415; viii, 278; ix 390; l, 140, 268.
Reuss, paragenesis of minerals, ii, 271.
Richardson, J., obituary of, i, 265.
Richthofen, v., China explorations, l, 149, 410.
system of volcanic rocks, noticed, v, 267.
Riddell, J. L., obituary of, i, 141, 267.
Rock-salt, in Louisiana, *Goessmann's* report, iii, 284.
Rocks, lifted and subsided, of America, l, 135.
Rocky Mt. expedition, *Marsh*, l, 292.
scenery, sun-pictures of, *Hayden* noticed, l, 125.
Rocky Mts., explorations in, *Whitney*, ix, 398.
Marsh, l, 292.
supposed absence of drift from Pacific slope of, *Brown*, l, 318.
Rodgers, J., tides of Tahiti, i, 151.
Rodman, C. S., analyses of turgite, iv, 219.
Rœmer, spider from coal formation, ii, 123.
Rogers, W. A., Asteroid (109), ix, 141, 428.
personal equation in transit observations, vii, 297.
Rogers, W. B., Pres. of Inst. of Technology, i, 141.
Rogers, H. D., library and geological specimens of, iii, 419.
Rogers, H. D., obituary of, ii, 136.
Rolfe and Gillet's Cambridge Physics, vi, 285.
Handbook of Chemistry, vii, 294.
Rood, O. N., tint from mixing blue and yellow, i, 369.
thermo-electric currents by percussion, ii. 12.
on measuring average size of fine particles, iii, 104.
on the discharge of a Leyden jar with the induction coil, viii, 153.
photometric experiments, Part I, ix, 145; Part II, l, 1.
Roepper, W. T., minerals from N. J., l, 35.
Root, E. W., enargite from California, vi, 201.
Wilsonite, v, 47.
Roscoe's Chemistry, noticed, iii, 137.
Spectrum Analysis, noticed, ix, 389.
Rosing A., obituary of vi, 148.
Rosse, Lord, obituary of, v, 142.
Lunar Radiator, viii, 436.
Rowley, S., theory of vision, vi, 153, 430.
Royal Geographical Soc., extracts from Murchison's address, v, 14.
Society of London, ix. 442.
Rumford medal to A. Clark, ii. 136.
Russia, central observatory of, ii, 286.
petroleum in, ii, 272.
Russian America, geography of, iv, 379; *Blake*, v, 242.
American explorations, *Dall*, v, 96.

S

Sadtler, S. P., Fischer's salt, ix, 189.
Sæmann, L., obituary of, iii, 435.
Safely, R., on mastodon remains, ii, 426.
Safford, J. M., geology of Tennessee by, noticed, i, 409; viii, 416.
petroleum in S. Kentucky, ii, 104.
Tennessee geological Report, noticed, vi, 435.
Safford, T. H., in charge of Chicago observatory, i, 140.
Salisbury, R. A., Genera Plantarum, ii, 280.
Salmon, acclimatization and vitality of, i, 109.
Salt, chemistry of, *Goessmann*, ix, 78.
deposit of, in Louisiana, *Owen*, ii, 120; *Hilgard*, vii, 77.
Salt springs, Onondaga, *Goessmann*, ii, 211.
Salter, Lingula flags of Wales, i, 262.
Sars, Michael, Memoires des Crinoids vivants, of, noticed, viii, 142.
on Quaternary of Norway, i, 286.
obituary of, ix, 144.
fund for, ix, 283.
Sartwell, H. P., obituary of, v, 121.

Saussure's Nat. Hist. of Mexico and Antilles, noticed. ii, 285.
Scarlet, on a pure, *Dall*, l. 291
Schiaparelli's theory of meteors, iii, 291.
Schlectendahl, obituary of, v, 124.
Schneider, new sulphur salts, ix, 108, 253.
platinum compounds, ix, 109.
Schoolcraft, sale of minerals, etc., of, viii, 440.
Schorlemmer, new hydrocarbons, iii, 108.
Schott, C. A., U. S. magnetic declination, i, 149.
Schrauf. A., determination of atomic weights by optical means, iv, 113.
Schultz, C. H., obituary of, v, 272.
Schwabe, on sun-spots, etc., iv, 287.
Schutzenberger on dyeing, noticed, iii, 421.
researches on platinum, l, 144.
Scorpion, fossil, *Meek* and *Worthen* vi, 19.
Scudder, S. H., entomological correspondence of Harris, viii, 143.
mole-crickets, vi, 417.
N. American Orthoptera, vii, 435.
on Neuroptera, iii, 411.
carboniferous insects, vi, 419.
Sea, see *Ocean*.
Seal, habits of, etc., noticed. l, 431.
Seasons origin of, *Mossman*, noticed, viii, 150.
Secchi's L'Unita delle Forze, noticed, iv, 143
Seeley, H. G., Ornithopsis, ix, 393.
Ornithosauria, noticed, l, 134.
Index to fossil remains in the Woodwardian Museum, noticed, l, 134.
on Owen's Dimorphodon, l, 425.
Selenium, properties of, *Rathke*, l, 111.
Serret, Cours d'Algébre, iii, 99.
Shades and shadows, Warren's problems in, noticed, iv, 139.
Sharples, S. P., analysis of minerals, ii, 271.
chemical tables by, iii, 139.
minerals from Chester Co, Pa., vii, 319.
new salt of cæsium, vii, 178
precipitation of antimonous sulphid from boiling solutions, l. 248.
Sharswood, W., on the discovery that Unios are sensitive to light, ix, 422.
Sheffield Laboratory contributions, i. 246; ii, 196; iii, 200, 351; iv, 219; v, 34; vi, 230, 240.
Shepard, C. U., Sr., rahtite, etc., i, 209.
meteor near Charleston, i, 276.
corundophylite and paracolumbite, ii, 91. 92, 269, 421.
mineral notices, ii, 246.
meteoric-iron, localities, ii, 249, 347.
classification of meteorites, iii, 22.
supposed tadpole nests, iii, 99.
Shepard. C. U., Sr., Cohahuila meteoric iron, iii. 384.
Corundophilite, Chester, vi, 256.
on aquacreptite, vi. 256.
meteorite from Georgia, vi, 257.
new U. S. meteorites, vii, 230
origin of S. Carolina phosphate formation, vii, 338.
new mineral phosphate from W. I., vii, 428.
mineralogical contribution, l, 90.
on ambrosite, l, 273.
on the Guanape Island guano and its minerals, l, 273.
Shepard, C. U., Jr., S. Carolina nodular phosphates. vii, 354.
Shimper, W P., Vegetable physiology by, noticed, vii, 272.
Shooting Stars, 1865, Nov., *Newton*, i, 58, 273.
Aug., 1866, ii, 286, 429.
1866, Nov., *Newton*, iii, 78, 276, 413.
1867, May. iv, 129; July, *Kirkwood*. iv. 288; Aug., *Newton*. iv, 426; Nov., *Newton*, v, 78, 225.
Aug., 1868, *Newton*, vii, 287.
Nov. 1868, *Newton*. vii, 118, 399.
1869, Nov., ix, 244.
connection with comets, iv, 128.
fall of, June 19, 1866, *Haidinger*, iv, 131.
in the southern hemisphere, iv, 429.
Nov. orbit of, *Adams*, iv, 127.
Nov., 1866, spectra of, v, 279.
proportions as given by different observers, *Newton*, i, 192.
recent investigations of, *Newton*, iii, 285.
treatise on, by Kirkwood, noticed. iv. 428.
see also *Meteors*.
Shufeldt, G. A., sources of great Lakes, iii, 193.
Shumard, B. F., Catalogue of Paleozoic fossils, noticed, i. 124, 410.
paleozoic fossils, noticed, ii, 118.
collections of, viii, 294.
Cretaceous of Texas, by, noticed, ii, 123.
obituary of, viii, 294, 442.
Siemens, electric machine of, iii, 386.
Siberia, tent life in, etc., noticed, l, 438.
Silbermann, J. F., obituary of, i, 103.
Silicates, anhydrous, relation between proportions of alkalies and amount of silica, *Dana*, v, 109.
chemical formulas of, *Dana*, iv, 252, 398.
determination of protoxyd of iron in, *Cooke*, iv, 347.

Silicic acid ethers, *Friedel* and *Crafts*, iii, 155, 331.
Silicon, carbon replaced by, ii, 255.
combinations of. with alcohol-radicals, *Friedel* and *Crafts*, ix, 307.
graphitoidal, cryst. of, *Miller*, i, 108.
hydrid of, iv, 107.
iodid of, *Friedel*, vi. 398.
new compounds of, iv. 105.
oxychlorid of, vi, 125.
Silliman, B., Sr., Weston meteor, 1807, vii. 1.
Silliman B., on Arizona, i, 289.
Gay-Lussite, Nevada, ii, 220.
naphtha and illuminating oil from California tar, iii, 242.
note on petroleum analyzed by, iii, 245; *Peckham*, iii, 345.
Grass Valley gold-mining district, iv, 236.
peculiar mode of occurrence of gold and silver. v, 92.
mastodon in California. v, 378.
Phillips on gold-mining, noticed by, vi, 134.
American Assoc. meeting, vi, 275.
transformation of Siredon, vi, 421.
illuminating power of gas, mixed with air, viii, 40.
on Wollongongite, viii, 85.
relation of the light from gas to the volume consumed, ix, 17.
on flame-temperatures, ix, 339.
note on Mr. Stimpson's paper on Farmer's Theorem, l, 377.
on the determination of the Photometric power of a rich gas by dilution, etc., l, 379.
Silliman, J. M., spectroscopic examination of the Bessemer flame, l, 297.
Silk, solution of, i, 427.
Silver-mines of Chihuahua, ix, 161.
mining, Phillips on, noticed vi, 134
Silver, sulphuret of, *Blake*, iii, 125.
Silvering upon glass, iii, 252.
Siredon, metamorphosis of, *Marsh*, vi, 364, 436; *Silliman*, vi, 421.
Sismonda, Anthracite rocks of Alps, iii, 409.
Chart of N. W. Italy, iii, 115.
Sitka, scientific party for, iv, 291.
Sky, color of, *Tyndall*, viii, 258.
Skylight polarization in Nebraska, *Chase*, iv, 265.
Smith, F. H., experiments with fluid jets, v, 419.
resolution of sounding flames, v, 421, 422.
Smith, H. L., on a microscopic finger, i, 331.
note on illumination of opake objects under the microscope, i, 424.
Smith, H L., new binocular eye-piece, v, 42.
on the spectroscopic examination of Diatomaceæ, viii, 83.
Smith, J. L., emery of Chester, Mass., ii, 83.
Colorado meteorites, iii, 66.
minerals from Kellogg mines, Ark., iii, 67.
meteoric iron, Mexico, v, 77.
meteorites, Wisconsin, vii, 271.
Cohahuila meteorite, vii, 383.
on desCloizite, viii, 137.
on lesleyite, viii, 254.
Alabama meteorite, ix. 90.
meteorite in Ohio, ix, 139.
Franklin Co. meteoric iron, and analyses of meteoric irons, etc., ix, 331.
on alkalies in leucite, ix, 335.
fall of meteorite in Georgia, l, 293.
meteorite of Stewart Co., Ga., analysis, l, 339.
on use of flame heat in the laboratory, etc., l, 341.
Smith, S. I., on new crustacea, viii 118.
on crustacea of Brazil, viii, 388.
on American Crustacea, No. I. noticed, ix, 426.
Smithsonian contributions to paleontology, iii, 363.
Institute, history of, *Bentham*, iv, 305.
library, transfer of, *Henry*, v, 137.
report, 1864, noticed, i, 143; 1865, ii, 436; 1867, vii, 295; 1868, viii, 450.
Smyth, R. B., gold-fields, etc., of Victoria, noticed, ix, 263.
Snell's Olmsted's Astronomy, ii, 139.
Soap and candles, manuf. of. noticed, iv, 141.
Sodium-amalgamation, *Wurtz*, i, 216.
flame, iii, 91, 94.
use of, in explosive powders vii, 431.
Soils, specific heat of, *Pfaundler*, iii, 393
Solar atmosphere, yellow ray of, vii, 415.
corona in total solar eclipses, *Norton*, l, 250.
eclipse, on observing, *Newcomb*, vii, 413.
physics, *De La Rue*, etc., iii, 179, 322.
prominence, photograph of, *Young*, l, 404.
protuberances, vii, 127, 273.
spectrum, vii, 127, 273, 274, 417.
map of, *Gibbs*, iii, 1.
spots, vapor of water near, vii. 416.
See also *Sun*.
Sombrero, geol. of, *Julien*, noticed. ii, 439.
Sorby, on meteorites, i, 136, 137.
spectra of zirconium and uranium compounds, ix, 387.

Soret, density of ozone, iv, 108.
Sound, transmission of, affected by interior friction of the air, iii, 253.
velocity of, *Kundt*, ii, 258; *Neumann*, ii, 417.
waves, interference, apparatus for, ii, 417.
Spectra, influence of electro-negative elements on, *Dracon*, i. 250.
ultra-violet, on the, *Mascart*, viii, 404.
gaseous, researches on, *Frankland* and *Lockyer*, viii, 402.
Spectral lines, *Hinrichs*, ii, 350.
breadth of, *Lippich*, l, 106.
of the elements, wave-lengths of, *Gibbs*, vii, 194; *Thàlen*, vii, 272.
Spectroscope, a new, *Zöllner*. ix, 58.
forms of, *Pickering*, v, 301.
detection of chlorine, bromine and iodine by, i, 112.
Spectroscopic examination of the Bessemer flame, *J. M. Silliman*, l, 297.
of the Diatomaceæ. viii, 83.
Spectrum analysis, *Lockyer*, ix, 432; *Roscoe*. ix. 389.
aqueous lines of, *Cooke*, i, 178.
artificial, vii, 418.
measurement of wave-lengths, *Gibbs*, v, 298.
of aqueous vapor, *Nicklès*, iii, 90.
of Aurora of April, 1869, viii, 404.
of electric brush, iii, 394.
of the stars, v, 393; vii, 274, 416, 417; ix, 58.
of shooting stars, *Browning*, v, 279.
of *T* Coronæ, ii, 389.
observations during eclipse, vii, 127.
solar, vii, 127, 273, 274, 417.
map of, *Gibbs*, iii, 1.
stellar *Secchi*, v, 393.
violet portions of, *Angström*, v, 250.
Sponges, animality of, *Clark*, ii, 320.
new genus from the lower Silurian, *Marsh*, iv, 88.
Spontaneous generation, *Child*, i, 381; *Dana*. i, 389; *Verrill*, i, 418, 420; *Nicklès*, iii, 97.
Städeler, on yolk of eggs, vi, 235.
Stanley's logarithmic tables, error in, vii, 287.
Star-drift, ix, 436.
Star-mapper, *Parkhurst*, viii, 163.
Star, new variable, ii, 79, 80, 135.
spectrum of, *Huggins* ii, 389.
photometer, results of, ii, 418.
Stars, fixed, D'Agelet's observations on, ii, 287.
Stars, heat of, *Huggins*, viii, 286; ix, 108.
heating power of, ix, 434.
spectra of, ix, 58.
Statistics, military and anthropological, *Gould*, viii, 149.
Steel, *Bessemer*, i, 278.
Stefan, sound affected by interior friction of air, iii, 253.
Stellar spectra, *Secchi*, v, 393.
Stereoscope, real image. *Maxwell*, v, 116.
Stevens, Henry, life of Humboldt, ix, 1.
on the earliest discoveries in America, viii, 299, 437.
Stewart, B., auroral appearances, etc., ix, 281.
solar physics, iii. 179, 322.
Stimpson on the Hydrobiinæ, noticed, i, 270.
Stimpson, F. E., discussion of Farmer's theorem, l, 372.
Stockwell, J. N., variation in elements of earth's orbit, vi, 87, 436; l, 147.
Stodder on Nobert's test-plate, review of. *Sullivant*, vi, 347.
Stone implements, Celtic, composition of, ii, 272.
Chatel's collection of, ii, 289.
of Elba, i, 427.
Stone, E. J., appointed astronomer at the Cape of Good Hope, l, 149.
Storer, D. H, fishes of Mass., noticed, v, 129.
Storer, F. H., hydrocarbons from animal fats, iii, 250.
Johnson's How crops Grow, noticed by, vii. 147.
naphtha from Rangoon petroleum, iii, 251.
on nitric acid and chlorate of potassium as an oxyizing mixture. viii, 190.
Storer and Eliot, chemistry of, noticed, iii, 420; vi, 130.
Storer, H. R., decreasing increase of population, iii, 141.
Storms, telegraph to announce, ix, 282.
Strecker, on sulph-acids, vi, 124.
on uric acid, vi, 124.
Strong, T., obituary of, vii, 293.
Struver, on sellaite, l, 273.
Subsidence of land at Coxsackie, i, 12.
Sugar in the liver, vi, 379; vii, 20, 258, 393.
test for distinguishing kinds, i, 427.
Sullivant, W. S., Musci Bor-Amer., by, i, 417.
notes on Stodder on Nobert's test-plate. vi, 347.
Sulph-acids, formation of, *Strecker*, vi, 124.
Sulphid, carbonylic, *Than*, v, 251; *Berthelot*, vi, 129; vii, 122.
Sulpho-carbamid, *Reynolds*, vii, 428.

Sulphur deposit, island of Saba, viii, 278.
in organic compounds, method of determining, *Warren*, i, 40.
new acid of, viii, 408
salts, new, *Schneider*, ix, 108. 253.
Sulphuric acid of Gasteropods, ix, 420.
Sulphuric anhydrid, modifications of, l, 114.
Sulphurous acid, action of sunlight on, *Loew*, ix, 368.
Summer, Indian, *Willet*, iv, 340.
Sun, eclipse of, ix, 134.
of August 7, 1869, viii, 286; *Gould*, viii, 434; *Mayer's* report of, viii, 434; meteors during, *Himes*, viii, 435; *Pickering's* party, viii, 435; *Winlock*, viii, 434; *Young*, viii, 370, 453.
Foucault's objectives for observing, iii, 254.
light, action of, on glass, *Gaffield*, iv, 244, 316.
limb of, method of observing contacts at, *Young*, viii, 370.
method of viewing solar prominences without an eclipse, viii, 401.
physical constitution of, *Lockyer*, viii, 402, 403.
protuberances of, *Zöllner*, viii, 401.
spectroscopic examination of, *Lockyer*, viii, 121.
spots, *De la Rue*, etc., iii, 179, 322.
and auroras, compared with magnetic declination, *Loomis*, l, 153.
and other solar phenomena, *Schwabe*, iv. 287.
influenced by refraction, ii, 260.
theoretical temperature of, *Lane*, l, 57.
See also *Solar*.
Swallow, G. C., geol. report of Kansas, noticed, iii, 283.
notes on Kansas, i, 405.
Sweden, geol. map of, i, 429.
Szabo, meteorite in Hungary, ii, 432.

T

Tadpole nests, supposed, *Shepard*, iii, 99.
Tahiti, tides at, *Rodgers*, i, 151; *Winslow*, ii, 45.
Talbutt, J. H., new analytical processes, l, 244.
Tantalic acid in microlite, *Shepard*, l, 95.
Tantalum, *Marignac*, i, 397.
compounds, *Marignac*, iii, 108; *Deville* and *Troost*, v, 396.
reduction of, *Marignac*, v, 393.
Tapir, new species from Guatemala, *Gill*, l, 141.
young, *Verrill*, iv, 126.
Taylor on mineral resources of U. S., vi, 131.
Telegraph Co., explorations by, in Russian America, i, 139.
by sound, in Africa, i, 140.
longitude measured by, iii, 130.
Temperature, influence of, on modulus of elasticity of metals, *Kohlrausch* and *Loomis*, l, 350.
theoretical, of the sun, l, 57.
terrestrial, and solar spots, *Abbe*, l, 345.
of flame, ix, 339.
Tennessee, geology of, *Safford*, i, 409, vi, 435; viii, 416.
petroleum in, *Safford*, ii. 104.
Tenney's Nat. Hist. of animals, ii, 429.
Terbium, non-existence of, i, 400.
Terpin, native hydrated, *Blake*, iii, 202; *Johnson* iii, 200.
Tests for parallelism in glass, *Gibbs*, l, 35.
Texas, geol. survey, Buckley's report, ii, 437.
Teyler Museum, Archives, noticed, vi, 286.
Thallic acid. *Carstanjen*, iv, 269.
Thallium and thallic acid, i, 106, 107.
ethyl compounds of, ix, 389.
position of among elements, l, 108.
salts of, *Strecker*, i, 114.
Thallous oxyd, a test for ozone, viii, 410.
Than on carbonylic sulphid, v, 251.
production of ozone in rapid combustion, l, 255.
Theory of existence, noticed, ix, 286.
Thermal units, *Meur*, l, 149.
Thermo-dynamics, St. Robert's, noticed, i, 287.
Thermo-electric currents by percussion, ii, 12.
Thioxyl, chlorid of, synthesis of, iii, 107.
Thomas, T. F., anal. of mineral water, ii, 196.
Thomson, W., size of atoms, l, 38.
Thomson, Wm., size of molecules, l, 258.
Tides at Tahiti, *Rodgers*, i, 151; *Winslow*, ii. 45.
Tillman's chemical nomenclature, iii, 140.
Tin, separation of from arsenic, etc., ix, 48.
Tin and tungsten, separation of, *Talbott*, l, 246.
Titanium, oxyd of, Chester, Mass., ii, 92.
Toluidine, new alkaloid isomeric with, viii, 123.
Tones, interferential, *Stefan*, iii, 253.
Töpler's method for finding differences of density, iii. 390.
Torrey, J., semi-centennial of, v, 273.
Traill's treatise on quartz and opal, ix, 403.
Transit observations, personal equation in, *Rogers*, vii. 297.
Transparency of the air, *Nicklès* v, 70.
Treadwell, D., new cannon, i, 97.

Treadwell, D., strength of cannon, v, 135.
Trees, tall, in Australia, iv, 422; viii, 294.
Tri-chlor-methyl-sulphon chlorid, *Loew*, vii, 350.
Troost, heat of combination of boron and silicon with chlorine and oxygen, ix, 386.
Trowbridge, D., meteors, Aug. 1866, ii, 286.
Tungsten, chlorids of, *Debray*, ii, 254.
Turpentine, oil of, and camphor, hypochlorous acid on, *Wheeler*, v, 48.
Twisden, Introd. to mechanics, v, 426.
Tylor, A., on the Amiens gravel, vi, 302, 436.
Tyler, S. W., analyses of rahtite, marcylite, and moronolite, i, 209.
Tyndall, John, on chemical reactions caused by light, vii, 129.
on clouds, viii, 258.
on color of sky, polarization of skylight, etc., viii, 258.
on sound, noticed, v. 286.
sketch of Faraday, vi, 34, 180.

U

Ulrich, G. H. S., mineralogy of Victoria, l, 271.
Unio, new species of, *Isaac Lea*, viii, 144.
Uranium, action of light on, *Bolton*, viii, 206.
recovery of, from the phosphate, *Heintz, Reichardt*, l, 113.
Urea, formula of, *Heintz*, vi, 237.
Uric acid, *Gibbs*, vi, 289; *Strecker*, vi, 124.

V

Vanadium, *Roscoe*, viii, 407.
researches on, *Roscoe*, v, 394.
Van Beneden, commensalism among animals, l, 285.
Van Buren, J. D., machinery, strength of, by, viii, 151.
Van Nostrand's Engineering Magazine, vii, 295.
Vapor, adhesion of, *Gibbs*, iv, 101.
Vapor index, Lippincott's, iv, 139.
Vegetable, see *Botany*.
Venus, observations of, *Lyman*, iii, 129.
transit of, ix, 435.
mode of observing, *Newcomb*, l, 74.
Vermont, notes on geol. of, *Hunt*, vi, 222.
geol. of, *Perry*, vii, 341.
Verrill, A. E., notice of Wilder on morphology of limbs of mammals, i, 132.
distribution of North American birds, i, 249.
new fluid for preserving specimens, i, 268.
Verrill, A. E., notice of Clark's Mind in Nature, i, 418.
zoological notices, ii, 132, 283, 427; ix, 129, 273, 276, 423; l, 430.
polyps of Panama, noticed, ii, 428.
and corals of Pacific, noticed, ii, 428.
and echinoderms of New England, noticed, ii, 428.
crustacean parasitism, iv, 126.
on radiates in the museum of Yale College, and on some new species, iv, 125.
Echinoderms and Corals of Panama and Western America, iv, 125.
young of the Central American tapir, iv. 126.
Halcyonoid polyps in Yale College museum, v, 411.
on Hartt's corals and echinoderms from Brazil, v, 416.
on echinoderms from Lower California, v, 417.
Alcyonaria in Yale College museum, vi, 143.
notice of Hyatt on the Polyzoa, vi, 150.
on Radiata in Yale College museum, noticed, vii, 286.
on zoological nomenclature, viii, 92.
halcyonoid polyps, vii, 282; viii, 419.
on new jelly-fish and actineans, viii, 116.
phyllopod crustacea, viii, 244.
on localities of Artemia, viii, 430.
on corals and polyps of Exploring Expedition, viii, 431.
of West coast of America, viii, 432.
echinoderms and corals from Gulf of Cal., ix, 93.
sea-urchin of New England, ix, 101.
deep sea faunæ from recent dredgings, ix, 129.
shells of Gulf of California, ix, 217.
new corals, ix, 370.
new species of Entozoa, l, 223.
New England Nudibranchiata, l, 405.
parasites of man, l, 430.
Vieille, Eléments de Méchanique, iii, 99.
Vilmorin-Andrieux and Cie, Fleurs de pleine terre, v, 269.
Vision, binocular, *Le Conte*, vii, 68, 153.
theory of, *Rowley*, vi, 153, 430.
Vohl's test for naphthalin, vi, 130.
Volcanic action, seat of, *Hunt*, l, 21.
crater of Maui, ix, 43.
eruption at Santorin, i, 403.
in Hawaii, i, 424; iii, 264; vi, 105; vii, 89; ix, 269.
Leon, Nicaragua, v, 131.
Volanoes, works on, for sale, ii, 290.

Vose's Orographic geology, noticed, ii, 123, 205.
Vowel elements in speech, *Porter*, ii, 167, 303.

W

Wachsmuth, C., Burlington limestone formations, ii, 95.
Wales, North, geol. of, *Ramsay*, on, ii, 265.
Walker prize subjects, Bost. Soc. Nat. Hist., ii, 136.
Wallace, A. R., on Natural Selection, noticed, l, 142.
Walz, J., oxydation of diamylene, v, 57.
Ward, H. A., casts of fossils by, ii, 136.
Ward, N. B., obituary of, vi, 273; *Gray*, vii, 141.
Warren, C. M., chlorine in organic compounds, determ. of, ii, 156.
hydrocarbons from animal fats, iii, 250.
in Pennsylv. petroleum, v, 262.
naphtha from Rangoon petroleum, iii, 251.
sulphur in organic compounds, determination of, i, 40.
Warren, S. E., geom. problems by, noticed, iii, 284.
Shades and Shadows, noticed, iv, 139.
Washing of precipitates, *Bunsen*, vii, 321.
Washington, Mt., height of, iv, 377; v, 424.
Water, absorptive power of vapor of, ii, 259.
expansion of, iii, 254, 393.
from conduit pipe, delivery of, v, 191.
of Lake Leman, color of, *Hayes*, ix, 186.
on filtration of, by *Kirkwood*, noticed, viii, 446.
vapor of, absorptive power of, iii, 246.
in stars, *Nicklès*, v, 70.
spectrum of, iii, 90.
Waters, mineral, see *mineral*.
Watson, J. C., discovery of planets, iv, 426; vi, 274, 392.
Theoret. Astronomy by, noticed, vi, 145.
receives the Lalande prize, in astronomy, l, 293.
Watson's index to Indian names, vii, 143.
Wave-apparatus, *Lyman*, v, 384.
Wave-lengths, measurement of, by refractive indices, *Gibbs*, l, 45.
Weil, volumetric estimation of copper, l, 108.
Weisbach's mechanics, noticed, viii, 449; ix, 144.
Weld, M. C., remains of beaver in N. J., viii, 443.
West Virginia, oil-bearing uplift of, *Evans*, ii, 334.
Wetherill, C. M, crystalline nature of glass, i, 16.
on itacolumite, iv, 61.
Wharton, J., autumnal foliage, vii, 251.
products of nickel manufacture, ix, 365.
Wheatstone's electric machine, iii, 386.
Wheeler, C. G., action of peroxyd of manganese on uric acid, iv, 218.
hypochlorous acid on oil of turpentine and camphor, v, 48.
on a process of elementary analysis, i, 33.
Whewell, W., obituary of, i, 428.
Whelpley and Storer's metallurgical method, iii, 305.
Whitaker, W., subaërial denudation, vi, 268.
White, C. A., appointed geologist of Iowa, ii, 272.
drift in S. W. Iowa, iii, 301.
geol. of Iowa, iv, 23; l, 136.
Iowa coal measures, v, 331.
coal in Nebraska, v, 399.
Iowa geol. report by, noticed, iii, 284; v, 402.
shell-structure of Naiades, v, 400.
on "Cone in cone," v, 401.
Unios and light, vii, 280.
White Mts., glaciers in, *Packard*, iii, 42.
Whitney, J. D., geol. report of California, noticed, i, 124, 231, 351.
borax in California, i, 255.
new facts in geol. of California, i, 252.
human skull from shaft in Cal., iii, 265.
Nevada Silurian, iii, 267.
publications of Cal. geol. survey, viii, 133, 148, 151.
Yosemite guide-book, by, noticed, viii, 148.
explorations in Rocky Mts., ix, 398.
Whitney, H. M., eruptions in Hawaii, vi, 112.
Whittlesey, C., explorations in Minnesota, noticed, ii, 440.
Wiedemann, on magnetism of compounds, vii, 128.
Wilder, B. G., on morphology in limbs of mammals, i, 132.
morphology of the hand, iv, 44.
notice of Jour. of Anat. and Physiol., v, 124.
on extra digits, noticed, vii, 150.
Willet, J. E., fall of meteorite in Georgia, l, 335.
Williams, C. G., artificial formation of organic substances, vi, 327.

Williams, S. W., hail in China, iii, 281.
Will's qualitative analysis tables, noticed, iv, 140.
Wimmer, Salices Europeæ. iii, 272.
Winchell, A., petroleum in Canada, i, 176.
fossils of Marshall group, by, noticed, i, 120.
Niagara limestone fossils near Chicago, by, noticed, i, 409.
on Grand Traverse region, noticed, ii, 268.
geological chart by, vi, 140.
Sketches of Creation by, noticed, ix, 400.
Winds, motion of dome at Washington by, ix, 384.
Wine-making, Remelin on, noticed, vi, 432.
Wing, C. H., on double sulphates, ix, 356.
Winkler's Musée Teyler catalogue, iii, 284; v, 12!.
Winlock, J., on solar eclipse, viii, 434.
Winnecke, discovery of comet, l, 104.
Winslow, C. F., tides and earthquakes, ii, 45.
human remains in California, vi. 407.
Wöhler, F., graphitoidal boron, iii, 250, 388.
laurite and diamonds in Oregon, viii, 441.
Wolf, C., equivalent of cerium, vi, 53.
Wolfram, transparent, *Des Cloizeaux*, viii, 137.
Wolle, C. F., on supposed hercynite, viii, 350.
Wood, H. C., Algæ from California hot spring, vi, 31.
Woods, N. A., Myriapoda, noticed. i, 135
Woodward, H., new Paleozoic fossils, ii, 264, 272.
Woodward, J. J., photo-micrography, ii, 189.
Nobert's test-plate, vi, 352.
nineteen band test-plate, viii, 169.
magnesium and electric lights in photo-micrography, ix, 294.
Calcium light in photo-micrography, l, 366.
Workshop, The, noticed, vi, 151, 434.
Wormley's Micro-Chemistry of Poisons, noticed, iv, 140.
Worthen, A. H., geol. survey of Ill., ii, 291; iii, 110, 395; vii, 151.
Paleontology of Illinois, etc., iii, 113.
on paleozoic crinoidea, viii, 23.
Wright, A. W., form of discharge between poles of electric machine, ix, 381.
Wurtz, A., synthesis of aromatic acids, l, 115.
Wurtz, H., sodium amalgam, i, 216.
on grahamite, ii, 420.
atmospheric air mixed with gas, viii, 40.
gas-well in New York, ix, 336.
on flame temperatures, ix, 339.
Wyman, J., observations and experiments on living organisms in heated water, iv, 152.
on a crocodile in Florida, ix, 105.

Y

Yale College, Peabody's gift to, iii, 131.
Yosemite guide-book, viii, 148.
Young, C. A., printing chronograph, ii, 99.
on a new method of observing contacts at the sun's limb, etc., viii, 370, 453.
photograph of solar prominence, l, 404.
Yttria, *Bahr* and *Bunsen*, i, 399.

Z

Zinc and manganese precipitated as sulphids *Talbott*, l, 244.
Zirconium, new element associated with, viii, 405.
Zöllner, J. C. F., on astro-photometer, ii, 418.
observations on the protuberances of the sun. viii, 401.
new spectroscope. etc., ix, 58.
Zoological nomenclature, *Verrill*, viii, 92.
ZOOLOGICAL WORKS, noticed—
Allen, H., Comparative Anatomy, vii, 149.
Allen, J. A., Catalogue of Mass. reptiles and batrachians, vii, 285.
Bischoff, on gorilla, chimpansé, and orang-outang, iv, 142.
Clark, H. J., Spongiæ ciliatæ, v, 418.
Cope, E. D., Families of raniform Anura, v, 418.
Allegheny fishes, Va., vii, 285.
Batrachia, Reptilia, and Aves, extinct, of N. A., by, viii, 451.
Coues, Colymbus torquatus, iii, 411.
Birds of N. England, vii, 150.
S. Carolina, vii, 150.
Edwards, N. American butterflies, vi, 150, 436; vii, 150.
Gray. Synopsis of the star-fishes, in the British Museum, iv, 426.
Grote, Zygænidæ of Cuba, iii, 411.
Hyatt, molluscous order Tetrabranchiata, iv, 124.
Journal of Anat. and Physiol., v, 124.
Polyzoa, vi, 150.

ZOOLOGICAL WORKS, noticed:—
Lea, Unionidæ. iii, 411.
Index Unionidæ, v. 129.
Murray, geographical distribution of mammals, iii, 410.
Packard, Invertebrate fauna of Labrador, iv, 117.
Study of Insects, vi, 274.
Parker and *Jones*, oceanic Foraminifera, i, 287.
Record of Zoological literature, 1864, i, 287; 1865, iv, 144.
Scudder, Fossil Neuroptera, iii, 411.
N. Amer. Orthoptera, vii, 435.
Storer, Fishes of Mass., v, 129.
Stimpson on the Hydrobiinæ, i, 270.
Verrill, Polyps and Corals of N. Pacific Expl. Exped., i, 136.
on Hartt's corals and echinoderms from Brazil, v, 416.
Echinoderms from Lower Cal., v, 417.
Radiata in Museum of Yale College, iv, 125; vii, 286.
Wilder, morphology and teleology in limbs of mammals, i, 132.
Wood, myriapoda, i, 135.
ZOOLOGY—
Alcyonaria, in Y. C. Museum, *Verrill*, vi, 143.
Animal Commensalism, *Van Beneden*, l, 285.
Anthozoa, polymorphism of, vi, 273.
Birds of N. America, distribution and migration of, i, 78, 184, 249, 337.
Elliott's proposed work on, i, 288.
on carbolizing, *Parker*, l, 283.
Brachiopoda, a division of annelida, *Morse*, l, 100.
early stages of, *Morse*, ix, 103.
Butterflies of N. A., part 5, ix. 427.
Carboniferous insects, *Scudder*, vi. 419.
Corals and polyps of West Coast of America, *Verrill*, viii, 432.
Crustacea, new, Æthra, Scylaridæ, *Smith*, viii, 118.
of Brazil, *Smith*, viii, 388.
Phyllopod. viii, 240, 430.
American. ix, 426.
Cystidean, recent, *Lovén*. viii, 429.
Dimorphodon, l, 134, 424, 425.
Dodo, skeletons of, found, i, 273.
Echini, crinoids, etc., from deep sea dredgings, viii, 451.
ZOOLOGY—
Echinoderms and Corals from Gulf of Cal., *Verrill*, ix, 93.
Elasmognathus Dowii, *Gill*, l, 141.
Entozoa, new species of, *Verrill*, l, 223.
Ethmophyllum and Archeocyathus, *Meek*, vi, 144.
Flying-fish, flight of, *Mann*, i, 272.
Fossil, see *Geology*.
Gasteropods, sulphuric acid of, ix, 420.
Gulf stream fauna, *Pourtales*, vi, 409, 413.
Halcyonoid polyps in Yale College Museum, *Verrill*, v, 411; vii, 282; viii, 419; *Kölliker*. l, 430.
Horse, fossil, *Marsh*, vi, 374; *Owen*, l, 424.
Jelly-fish and actinians from Maine, *Verrill*, viii, 116.
Lælaps, *Cope*, vi, 415.
Leporide, *Pigeaux*, v, 127.
Life and Species, *Owen*, vii, 33.
Living forms in hot waters of California, v. 239.
Mole crickets, *Scudder*, vi, 417.
Molluscan fauna of New Haven, ix, 276.
Natural Selection, *Wallace*, l, 142.
New Corals, *Verrill*, ix, 370.
Nudibranchiata, New England, *Verrill*, l, 405.
Pennatula family, *Richiardi*, ix, 426.
Polyps and crustacea of the Ringgold Exploring Expedition, *Verrill*, viii, 431.
Protozoa. i, 421.
Scorpion, etc., from Ill., *Meek* and *Worthen*, vi, 19.
Sea-urchin of New England, *Verrill*, ix, 101.
Shells planted in Erie Canal, v, 137.
of Gulf of California, *Verrill*, ix, 217.
Siredon metamorphosed into Amblystoma, *Marsh*, vi, 364, 436; *Silliman*, vi, 421.
Tapir, new species of, *Gill*, l, 141.
Tubiporæ, structure of, vi, 273.
Unionidae, Synopsis of, *Lea*, l, 284.
Unios sensitive to light, *White*, vii, 280; *Lea*, vii, 430.
Zoology, new preserving fluid for, *Verrill*, i, 269.